

Supporting Remote Access

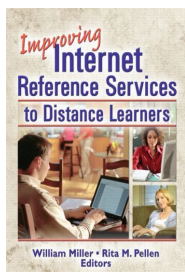
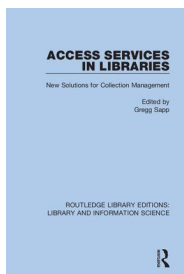
*Increasing Digital Library Resources
to Facilitate Remote Patron Access*



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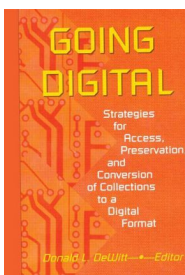
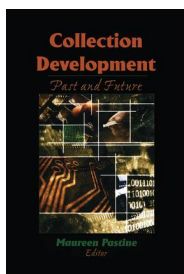
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The Impact of Networked Information on Access Services

Greg R. Notess

SUMMARY. The increasing number of electronic serials, books, and other documents being produced, and the opportunity for wide distribution of information over the Internet has raised new issues regarding library access to information. Few libraries currently provide access to such information sources, nor do most network users think to turn to a library to find these documents. This article concentrates on the possibilities for integrating existing networked electronic information into current library structure by exploring both the variety of electronic documents currently available on the network and the present means of access, followed by a discussion of the possibilities for providing library access and implications for access services.

INTRODUCTION

The advent of the electronic library has been proclaimed for years. While it certainly has not yet fully arrived in the mainstream of the library business, the past few years have witnessed the rise of many components of the electronic library. For example, Sony has recently introduced a portable electronic book player.¹ Of greater significance is the phenomenal potential of the vast store of information in electronic form already available on the Internet. An

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ever increasing number of library catalogs are accessible on the Internet, along with many offering indexes and full text files.² Librarians have become more active on the networks in recent years, as has been demonstrated by the growth in the number of library oriented computer conferences and the number of subscribers.³ United States Supreme Court opinions, position papers, weather reports, and technical reports are available and circulating on the network with ever more frequency. Electronic journals, disseminated over the networks, are increasing in number and prominence.⁴ Bill Katz even includes *Psycology*, a peer reviewed e-journal, as one of 1990's best ten new magazines.⁵

Even as these electronic information sources continue to multiply exponentially, they still represent the untamed frontier of information. Directories and guides are being developed, but access to this wealth of information is limited to those with network connections, navigational ability, and knowledge of the sources available. Libraries can be a positive force in exploiting this network information frontier by recognizing the wealth of materials available and providing library access and cataloging for such materials. Such a move in regard to network accessible information would impact all library departments. By investigating the types of documents available on the network, access services librarians can plan strategies for providing library access and dealing with potential problems relating to access services.

TYPES OF NETWORKED INFORMATION

While many of the varieties of information on the Internet come in simple electronic versions of a printed format, the potential of huge files and rapid transmission across continents has created some unique formats as well. A primary motivation behind a 1988 proposal for the creation of a peer-reviewed electronic journal on crop growth was that an electronic journal could include complete data sets and simulation software code, which are not included in paper journals.⁶ As the Internet continues to develop and greater access becomes available, many other variations on print media and previously unforeseen formats will emerge. The following is a

categorization of major, currently existing formats of networked information.

Computer Conferences: Computer conferences or electronic discussion groups are a type of "computer mediated communication" that facilitates a one to many distribution.⁷ An individual can send the same message to many others. Two primary types of computer conferences are the Bitnet listserver-based discussion groups and the Usenet newsgroups.⁸ Both provide a very timely means for people interested in a specific topic to exchange information and to express opinions. The listserver distributes e-mail messages to all "subscribers" for a specified list; whereas Usenet newsgroup postings are sent in their entirety to member sites, where local users read only the groups that interest them. A significant feature of both computer conference formats is that not only can these groups provide current information, but because many are archived, the archives can be searched and previous postings can be retrieved. Within the realm of access services, the CIRCPLUS listserver deals explicitly with issues related to the management and operation of a circulation or access services department.⁹

Books: Although it is awkward to read books on a computer screen, they are becoming increasingly common on the network. Sony's previously mentioned portable electronic book reader is one non-networked example. Of the various sources for electronic books on the Internet, Project Gutenberg, run by Michael Hart, is perhaps the best known. Project Gutenberg aims to have 10,000 books in electronic form by the year 2001. While only a few dozen are presently available, they include such works as Lewis Carroll's *Alice books*, *Moby Dick*, *The Federalist Papers*, and *The World Factbook*. Works in preparation include *The Oxford English Dictionary* and *Encyclopedia Britannica, 11th edition*.¹⁰ All the Project Gutenberg "publications" bypass the copyright question since they include only works which are either non-copyrighted or for which copyright has been obtained. Technology has not yet provided the means of making electronic books as enjoyable to read as their printed counterparts, but for textual analysis or quotation searching the electronic format is a true boon to the researcher.

Reference Tools: Reference works, which have traditionally appeared as books, are often ideally suited to electronic format.

These reference works appear as databases such as (1) bibliographies, (2) directories, and (3) other miscellaneous collections of information.

1. Many bibliographies are available on the network, which is an ideal means of distribution for them. Topics range from a general Internet resources bibliography,¹¹ to a bibliography of the ray tracing literature,¹² to another of articles in *Information and Computation* (formerly *Information and Control*) covering the years 1982-present.¹³ Subject bibliographies are available in such diverse fields as history, architecture, and physics. One subject-specific source, the Comserve mailserver, includes many bibliographies in the field of communications.¹⁴ While most are plain ASCII text files, some are "typeset" in postscript or are designed to be imported into a database manager.

2. Some examples of directories include listings of scholars, computer conferences, and libraries available on the Internet. Campus-Wide Information Systems often include a directory feature for the local campus.¹⁵ Comserve provides a directory of scholars in the communications field.¹⁶ As previously mentioned, there are directories of Internet-accessible libraries, electronic serials, and computer conferences. Many of these directories are available exclusively on the network.

3. Since any type of document that could be put into machine readable form could be made available on the network, there are many miscellaneous documents available. One example is the Weather Underground from the University of Michigan. This telnet accessible service gives weather reports from around the country, current weather observations, and selected ski reports.¹⁷ Other examples include databases of recipes and the *New Hacker's Dictionary*, a listing of computer jargon with definitions.¹⁸ Even *Choice* book reviews are available full-text through CARL.¹⁹

Two recent developments provide a common interface for searching such directories and other databases. The Internet Gopher software is a client/server protocol designed to search for information on multiple hosts. This allows the user to learn one protocol for searching multiple files.³ In a similar vein, the Wide Area Information Server (WAIS) provides a single search engine, based on the Z39.50 NISO standard, that can search multiple Internet databases.²¹

Electronic Serials: The advent of electronic serials has sparked much debate and anticipation in the library and publishing worlds. Touted as a solution to the spiraling serial price crisis, the electronic journal promises great potential for libraries.²² There are different visions of the format of the electronic journal. Some see it simply as an electronic version of the typical paper journal, while others argue for a format which allows a faster, more interactive exchange of ideas.²³ The most ambitious electronic journal (at the time of this writing) is the forthcoming *Online Journal of Current Clinical Trials*, a joint venture between OCLC and the American Association for the Advancement of Science. This refereed journal can be viewed and printed in typeset quality (given the appropriate hardware and software) and promises publication within 24 hours of acceptance of an article.²⁴

Miscellaneous: Any type of document that can be transformed into machine-readable form can be made available on the Internet. Other types of network available sources include technical reports, reprints, and software. A variety of technical reports have appeared on the network. Requests For Comment, the technical documents for network architecture and related issues, have existed only in electronic form for years. The Government Accounting Office has released reports to the network community in hopes of reaching a broader audience. Reprints of articles that appeared first in print have traversed the network. Copious amounts of public domain software for all types of operating systems and hardware platforms are available. The future potential of this resource is vast as the new forms that are created.

CURRENT ACCESS

Of all the aforementioned varieties of networked electronic information sources, few if any are available in most libraries. To retrieve networked information, there are two prerequisites: physical access to the Internet and the basic knowledge necessary to navigate the networks. Physical access first requires a computer with an Internet connection. There are a variety of options for connecting to the Internet. Most academic institutions have a connection through a mainframe in the computing center. Software now exists

to turn a desk top into an Internet mode; however, there are costs. In discussions on the network, cost estimates for a full Internet connection usually end up in the five digit range. More affordable alternatives are becoming available through services such as the Colorado Supernet, the World, and Netcom, which offer services in the range of \$20/month. Most academic libraries have some network connectivity, either on public or staff terminals. Some of the larger or more fortunately located public libraries are also establishing network connections. With cheaper alternatives becoming available and the recent passage of the National Research and Educational Network authorizing legislation, many libraries with no current Internet access may find it a greater possibility in the coming years.²⁵

The knowledge prerequisite is another matter. The Internet has no centralized authority and is designed to function under multiple platforms. Although many of its strengths derive from this decentralization, it also means that there are multiple systems and access methods to be learned to access the wealth of electronic information. Proficiencies with a local electronic mail system, the listserver program, a newsreader program, File Transfer Protocol (FTP), telnet, and a variety of compression programs provide the basis for becoming a successful Internet traveler. While these basics may be second nature to the computer scientist, this knowledge base is complex and foreign to most library users. In addition, the "how-to" proficiency is only half of the knowledge equation: a person also needs to know what documents are available and where they might be located on the network. Currently, much of this information is obtained by word of mouth on the network or is announced on appropriate lists or to newsgroups. This situation addresses the potential role of libraries, for what is needed is some type of bibliographic control on the network.

LIBRARY ACCESS

A compelling argument for providing library access to such information is that it will be otherwise unavailable to large segments of the population. Another is that once the investment in hardware

and network connectivity has been made, most of the information is available free of charge. While individual libraries can begin the work of bibliographic control, it can be hoped that federally funded research into Internet resources by OCLC may lead to some centralized cataloging.²⁶

When a document is in electronic form, it can easily be stored in multiple locations or printed into hard copy. Many networked documents are available in different stages at separate locations. Cataloging decisions will need to be made regarding to which of these locations and versions the bibliographic record will refer. One possibility would be to create a catalog record for the document, serial, or database and, in place of a call number, give the nearest network location (which does not always mean nearest geographically) along with sufficient login instructions. Documents could be retrieved and stored locally, but while local storage means local control, it can cost for storage, and often library computers have little storage space available. Access from storage at other sites will be less costly, but the local library loses control over the original. If the remote site decides it needs to free up some disk space, the files could be dumped.

Physical access creates various difficulties. Two distinct user groups should be considered: the traditional walk-in user and the remote user who can dial in from a home computer. For the first group, access to resources that can retrieve and produce a readable version of the information is essential. For documents not printed and housed in the library, certain hardware will be necessary to obtain network access to the actual document. For plain ASCII text files a printer and the Internet connected microcomputer will suffice. For more complete access to forthcoming documents such as *The Online Journal of Current Clinical Trials*, a 286 PC with Windows™ 3.0, a VGA monitor, modem, and a laser printer may be necessary. Since some may prefer to download instead of or in addition to printing, 3.5" and 5.25" disk drives should be included in the hardware configuration. Even with all the hardware, the patron will need to have much more knowledge to retrieve the document than that required to read a call number and find a book on a shelf. Considering the advanced skills required, it could well be more efficient to have library staff retrieve the document. One

possibility would be to have the catalog entry give the option to have the document either printed at the circulation desk or sent to an e-mail address. While software is being developed that could automate this option, in the meantime a library staff member could receive the request, obtain the document on the network, and print or e-mail it.

While no library provides full bibliographic and physical access to all the previously described networked information, some libraries are beginning to address the handling of electronic journals. Virginia Tech, for example, established a task force and a plan for cataloging selected e-journals. One great advantage of living in a networked environment is that Tech's cataloging can be viewed by anyone with an Internet connection. Notes are provided in the MARC record to alert patrons to both the network access point, such as the listserv address, and a local access point in the university's INFO system.²⁷

ACCESS SERVICES ISSUES

How will such networked information sources impact access services? As with many innovations in library science, different libraries will assign responsibility to different departments, and cooperation from all library departments will be necessary to achieve fullest access to these media. One issue within access services' purview is circulation, which could be interpreted in the world of networked information as providing copies of information for a person to read at home. If the material is not copyrighted or has a license which allows unlimited copies to be produced from the electronic original, circulation departments could provide a paper or disk copy for anyone interested. One frequent complaint about electronic documents is the awkwardness of reading them on the screen. A library should be able to provide readable printouts of electronic documents to those who would like to take the document home. For those who would "read at home" on their own microcomputer's screen, facilities will also need to be provided so that users can download data to disks.

The copyright questions promise to be quite complex. In a recent

article on copyright, Okerson writes that "current copyright law does not address the realities of the kind of scholarly communication increasingly available in the electronic information age."²⁸ The availability of more strictly copyrighted material on the network will only increase as progress is realized in managing royalty payment schemes for such materials. Fortunately, much of the material on the network now is either not copyrighted, in the public domain, or copyrighted with free distribution rights granted.

Reserve services are related to both copyright and circulation issues. Documents requested for reserve could be retrieved on the network and stored locally for the duration of the class. They could be located both in the library reserve area as a printout of acceptable quality and/or in a central library computer system, which students could access from the library or a home computer. Subdirectories could be set up for specific classes, and documents could be placed accordingly. An electronic version of a reserves list can be set up by the computing center or an individual faculty member on a central computer completely bypassing the library. While some institutions may welcome such a role for the computer center, bringing this function under the aegis of the library could allow for a systematic means of obtaining copyright owners' permission for use of certain readings and verifying that appropriate citations and copyright disclaimers exist on all the documents.

While reshelving of documents will most likely be unnecessary for electronic versions, shelf-reading, if defined as a periodic verification that documents exist at a specific cataloged location, would still be necessary in the electronic library. For documents not held on a local computer, it would be essential to periodically verify that they still exist at the designated location. For anonymous FTP documents, the path may be changed as more documents are added and new subdirectories are required, and that would require a change in the local catalog record. Even for works held in local electronic storage, periodic verification that the file has not been damaged by system failures, power surges, or accidental deletions would be a wise precaution.

Those libraries providing individual patron accounts on their computers for e-mail and other network activities could issue accounts by access services. This could become a process connected

to library card registration. Accounts could be set up allowing full access to the Internet, or allowing e-mail access and limited telnet capabilities such as in the Freenet systems.²⁹

As a greater number of patrons establish e-mail accounts and more documents become available electronically, document delivery services become more cost effective. As in the model mentioned earlier, for electronic documents that a user could not immediately obtain, an option could be offered that would allow the library to retrieve the document then send it to the user's e-mail address. While this might require staff time at first, programs could be set up that would retrieve the file and e-mail it to the appropriate address.

Since networked information opportunities will most likely increase the demand for traditional access services, additional staff may be required. At a minimum, staff training in the varieties of information available on the Internet and the procedures to retrieve these documents would be necessary.

CONCLUSION

While the vision of the fully electronic library continues to be extolled and developed, libraries are now beginning to address access issues for existing electronic information sources.³⁰ It can be expected that the public will be able to enter the library (in person or via computer) and obtain bibliographic references to networked information and receive assistance in retrieving electronic documents. A person might walk into a public library, find reference to the Weather Underground, press a key that would open a connection to this resource, browse recent weather conditions, press another key that would request a printout of current conditions for a certain state, then pick up the printout at the circulation desk, or a scholar at home might come across a reference to an article in the electronic journal *Post Modern Culture*, dial in to the library catalog, find an entry for the journal, then place a request for the electronic delivery of the article.

Access services can play a crucial role in the delivery of networked information in the evolving electronic library by investigat-

ing circulation, copyright, and reserve functions in the transmission of networked information. The sources exist; the technology exists; now is the time for librarians to take the initiative and begin to implement access to the wealth of electronic information sources on the networks.

REFERENCE NOTES

1. "Sony's Electronic Book: A New Library Format?" *Library Journal* 116 (November 15, 1991): 26.

2. There are a number of directories available, all of which are revised irregularly. See Billy Barron, *UNT's Accessing On-Line Bibliographic Databases*, available via anonymous FTP from [ftp.unt.edu as/library/libraries.txt](ftp://ftp.unt.edu/as/library/libraries.txt) and Art St. George and Ron Larsen, *Internet-Accessible Library Catalogs & Databases*, available via anonymous FTP from [ariel.unm.edu as/library/internet.library](ftp://ariel.unm.edu/as/library/internet.library). For an electronic, hypertext directory, see Peter Scott, *Hytelnet, Version 5.0*, available via anonymous FTP from [access.usask.ca as/hytelnet/pc/hyteln50.zip](ftp://access.usask.ca/as/hytelnet/pc/hyteln50.zip)

3. See Charles W. Bailey, "Library Oriented Computer Conferences and Electronic Serials." Revised editions distributed periodically on the PACS-L mailing list from listserv@uhupvm1. Additions have appeared almost every month for the past year or so, and the PACS-L list itself now boasts more than 3000 subscribers.

4. Michael Strangelove and Diane Kovacs, *Directory of Electronic Journals, Newsletters and Academic Discussion Lists* (Washington: Association of Research Libraries, Office of Scientific and Academic Publishing, 1991). This work is a combination of two documents available on the network: Michael Strangelove, *Directory of Electronic Journals and Newsletters*, 1st ed. July 1991, available by sending the messages `get ejournal1 directory` and `get ejournal2 directory` to listserv@uottawa, and Diane K. Kovacs, *Directory of Scholarly Electronic Conferences*, 3rd rev., 1991, available via anonymous FTP from [ra.msstate.edu](ftp://ra.msstate.edu) in the `/pub/docs/words-1` directory, all file names beginning with `acadlist`.

5. Bill Katz, "The Ten Best Magazines of 1990," *Library Journal* 116 (April 15, 1991): 51.

6. Basil Acock, Stephen R. Heller, and Stephen L. Rawlins, "An Electronic Journal for Sharing Data on Crop Growth," in Phyllis S. Glaeser, ed., *Scientific and Technical Data in a New Era: Proceedings of the Eleventh International CODATA Conference, Karlsruhe, Federal Republic of Germany, 26-29 September 1988* (New York: Hemisphere Publishing, 1990), 308.

7. For a more detailed description of computer conferencing see Howard Rosenbaum and Gregory B. Newby "An Emerging Form of Human Communication: Computer Networking," in *ASIS '90: Proceedings of the 53rd ASIS Annual Meeting* (Medford, N.J.: Learned Information, 1990), pp. 305-306.

8. An excellent introduction to both can be found in Jonathan Kochmer,

NorthWestNet User Services Internet Resource Guide, 3rd ed. (Seattle: NorthWestNet, 1991), pp. 71-94. This document is also scheduled to be made available via anonymous FTP from [ftphost.nwnet.net](ftp://ftphost.nwnet.net) in the [nic/nwnet/user-guide](ftp://ftphost.nwnet.net/nic/nwnet/user-guide) subdirectory.

9. To subscribe to CIRCPLUS, send "Subscribe Circplus First_Name Last_Name" message to CIRCPLUS@idbsu.idbsu.edu.

10. Jonathan Kochmer, *North WestNet User Services Internet Resource Guide*, 3rd ed. (Seattle: NorthWestNet, 1991), pp. 99-100.

11. Gord Nickerson, *Internet-Accessible Information Resources Bibliography* (October 1991) available via anonymous FTP from [hydra.uwo.ca](ftp://hydra.uwo.ca) (129.100.2.13) as [libsoft/intenet/biblio.txt](ftp://hydra.uwo.ca/libsoft/intenet/biblio.txt).

12. Richard Speer, *Cross-Indexed Guide to the Ray Tracing Literature* (July 1991); available via anonymous FTP from several sites, including [princeton.edu](ftp://princeton.edu) (128.112.128.1), as [pub/Graphics/Papers/speer.raytracing.bib.ps](ftp://pub/Graphics/Papers/speer.raytracing.bib.ps).

13. Available via anonymous FTP from [theory.lcs.mit.edu](ftp://theory.lcs.mit.edu) (18.52.0.92) as [ftp/pub/meyer/iandc.bib](ftp://pub/meyer/iandc.bib).

14. For a basic introduction to services available from Comserve send the message **Send Comserve Helpfile** to comserve@rpiacs.

15. For example, see Yale University's ENTERPRISE CWIS (accessible by telnet to [yalevm.ycc.yale.edu](telnet://yalevm.ycc.yale.edu) port 300) and New York University's INFO CWIS (accessible by telnet to [info.nyu.edu](telnet://info.nyu.edu)).

16. For information on this feature send the message **Help Topics Whitepages** to comserve@rpiacs.

17. The Weather Underground is accessible by telnet to [hermes.merit.edu](telnet://hermes.merit.edu) (at the Which host? prompt, type [umweather](telnet://hermes.merit.edu)) and directly to [madlab.spri.umich.edu](telnet://madlab.spri.umich.edu) port 3000

18. *The New Hacker's Dictionary* is available by anonymous FTP from [mc.lcs.mit.edu](ftp://mc.lcs.mit.edu) (18.26.0.179) as [pub/jargon/jargon296.ascii](ftp://mc.lcs.mit.edu/pub/jargon/jargon296.ascii)

19. Choice book reviews are accessible by telnet at [pac.carl.org](telnet://pac.carl.org) in menu choice 60.

20. Software for the Gopher client is available via anonymous FTP from [boombox.micro.umn.edu](ftp://boombox.micro.umn.edu) in the [pub/gopher](ftp://boombox.micro.umn.edu/pub/gopher) directory. To see an example of its implementation, telnet to [anthrax.micro.umn.edu](telnet://anthrax.micro.umn.edu) (128.101.95.23) and login as [gopher](telnet://anthrax.micro.umn.edu).

21. Richard Marlon Stein, "Browsing Through Terabytes," *Byte* 16, no. 5 (May 1991): 157-164. For a prototype WAIS system telnet to [quake.think.com](telnet://quake.think.com) (192.31.181.1), login as [wais](telnet://quake.think.com).

22. For an excellent overview of possible impacts of electronic serials on serial publishing, see the recent series of articles in *College and Research Libraries*: Kenneth E. Marks, Steven P. Nielsen, Craig H. Petersen, and Peter E. Wagner, "Longitudinal Study of Scientific Journal Prices in a Research Library," *College and Research Libraries* 52 (March 1991): 125-138; Eldred Smith, "Resolving the Acquisitions Dilemma: Into the Electronic Information Environment," *College and Research Libraries* 52 (May 1991): 231-240; Paul Metz and Paul Gherman, "Serial Pricing and the Role of the Electronic Journal," *College and*

Research Libraries 52 (July 1991): 315-327; Ann Okerson, "With Feathers: Effects of Copyright and Ownership on Scholarly Publishing," *College and Research Libraries* 52 (September 1991): 425-438; and Ronald F. Dow, Karen Hunter, and G. Gregory Losier, "Commentaries on Serials Publishing," *College and Research Libraries* 52 (November 1991): 521-527.

23. Ann Okerson, "The Electronic Journal: What, Whence, and When?" *The Public-Access Computer Systems Review* 2, no. 1(1991): 9. *The Public-Access Computer Systems Review*, appropriately, is an electronic peer-reviewed journal. This article can be retrieved by sending the message `get okerson prv2n1 to listserv@uhupvm1`.

24. Martin Wilson, "AAAS Plans Electronic Journal Venture with OCLC," *Information Today* 8 (November 1991): 19-20.

25. *High-Performance Computing Act of 1991*, 105 Stat. 1594 (1991). The text is also available via anonymous FTP from `nis.nsf.net` as `nsfnet/nrenbill.txt`.

26. "Internet Resources," in *Annual Review of OCLC Research: July 1990-June 1991* (Dublin, Ohio: OCLC, 1991), pp. 18-19.

27. To view the catalog records, telnet to `vtnet.cns.vt.edu` (128.173.5.4). The following e-journals are among those included: *Psychology*, *The Public Access Computer Systems Review*, and *Electronic Journal of Communication*. For a more detailed description of the management process, see William Dougherty et al., "Report of the Task Force on the Electronic Journal" May 17, 1991. (Available from Myra Hereford, University Libraries Director's Suite, Virginia Polytechnic Institute and State University, PO Box 90001, Blacksburg, VA 24062-9001, Internet: `myra@vtvm1.cc.edu`.)

28. Okerson, "With Feathers," p. 429.

29. For an example, see the Teleport option available on the Cleveland Free-net, accessible by telnet to `129.22.8.76` or `129.22.8.75` or `129.22.8.82`.

30. Brett Butler, "The Electronic Library Program," *Library Hi Tech* 9, no. 2 (1991): 21-30.

Got Distance Services? Marketing Remote Library Services to Distance Learners

James Fisk
Terri Pedersen Summey

SUMMARY. Distance learning students may not think of the “campus” library as the first place to fulfill their information needs and may not even be aware of the services available to them. One way to reach these students is to adopt and adapt marketing techniques from the business world. This article examines the findings of a survey conducted at Emporia State University concerning the awareness of distance learning services. It will also examine marketing techniques and illustrate how they can be applied to increase awareness of reference support services for distance learners. *[Article copies available for a fee from The Haworth Document Delivery Service: 1-800-HAWORTH. E-mail address: <docdelivery@haworthpress.com> Website: <<http://www.HaworthPress.com>>*
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KEYWORDS. Off-campus library services, distance education, distant learners, marketing, academic library

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INTRODUCTION

Distance learning programs continue to proliferate at academic institutions. The faculty and students involved in these programs also continue to grow in numbers. These remote learning communities present both opportunities and challenges for the academic library. In response, libraries are not only adapting traditional services to meet the needs of these learners, but are also offering specifically tailored new services. However, for these programs to be successful, the students being served must also be aware of the support and services available to them through the library. Without such awareness, the services will go unused. Through a survey conducted with students at the School of Library and Information Management, the librarians at Emporia State University learned that making distance students aware of services is a key to the success of distance learning library service programming.

THE SURVEY

During the spring and summer of 2000, a student at the School of Library and Information Management (SLIM) at Emporia State University collaborated with librarians of the University Libraries and Archives to assess the library needs of students enrolled at SLIM. The assessment came in the form of a 30-question survey sent to over 400 SLIM students with only a few of these students residing in or near the Emporia campus. He solicited information in regard to student demographics, their access to information, and their attitudes and beliefs as relating to library services available to them as tuition-paying students of Emporia State.

A major finding of the study indicated that for most students, the William Allen White Library at Emporia State played only a small role in their academic lives. In addition, many of these students generally had little or no knowledge of the library services to which they were entitled. For example, full access to FirstSearch, a staple of online databases, was available to all students of SLIM. Yet, 53% of those students responding to the survey were either unaware of its availability or rarely made use of it.

In response to the findings of the survey, the following recommendation was made to the administration of the William Allen White Library:

Aggressively market remote library services! These services have no value if they are not used. One student's bulleted recommendation is brief but insightful. "Better advertisement of the library services than now provided to distance students, I had not a clue!" (Fisk 2000, 8)

The School of Library and Information Management is not the only division to offer distance education programs at Emporia State. The Office of Lifelong Learning coordinates a number of other programs. Students of the Teachers College may complete any number of different master degrees either exclusively online or by enrolling in classroom courses taught at sites other than in Emporia and through the Internet. These students may also add endorsements to their teacher licensures through an online curriculum. Programs extend to undergraduates as well. They may earn a Bachelor's of Integrated Studies on the Internet or complete a Bachelor's of Science Degree in either Business or Education at several sites throughout the state of Kansas.

The students enrolled in the online or Internet enhanced programs are by virtue of technology and/or their place of residence, distance students. As such, they likely do not have convenient access to the campus-based William Allen White Library. Nevertheless, the Library can play an important role in their academic lives.

To be able to reach these distance students, the library has worked hard to develop new services and provide resources. William Allen White Library purchases both e-books and databases with full-text content to be able to provide resources in electronic formats. Access to materials and databases is available off-campus through e-reserves, document delivery, and a proxy server. Library staff may be contacted for assistance through a variety of methods including a toll free number and chat reference. But in order for students to use these valuable services and resources, they need to know that they are available.

WHY MARKET DISTANCE REFERENCE SERVICES?

These survey results highlighted a severe need for some kind of marketing to occur and prompted the library administration and staff to look at developing a marketing campaign in order to promote library services and e-resources to its distance learning community. Since a university library is considered to be central to the educational mission of an institution, one may not understand the need to market such a visible re-

source. Although the library may have a large physical presence on the “brick and mortar” campus, it may not be so obvious to those at a distance from the campus. In the past, when it came to the provision of information, the academic library enjoyed a monopoly. This is no longer true, because even “traditional” college students physically at a university may look to other sources to meet their information and research needs.

Several reasons may be cited as justification for the expenditure of efforts associated with marketing library services to the students of distance education. According to the Guidelines for Distance Learning Library Services, institutions of higher learning and their libraries “must meet the needs of all their faculty, students, and academic support staff, wherever these individuals are located.” As delineated in the “Guidelines,” it is the responsibility of the librarian-administrator in charge of distance library services to discover the needs of the community being served, provide equitable services and resources, and “promote library support services to the distance learning community” (ACRL DLS, 2000). Thus, the “Guidelines” specifically mandate promotion of the resources and services available to those involved in distance learning at academic institutions. McDonald and Keegan, in their book *Marketing Plans That Work*, echo the call from the ACRL by observing that “the central idea of marketing is to match the capabilities of a company with the needs and wants of customers to achieve a mutually beneficial relationship” (1997, 1). Operating a customer oriented library requires using business marketing techniques to not only market services, but to also identify the needs of customers and to tailor services to meet those needs.

But the reasons for promoting what is available go beyond adhering to the “Guidelines.” Similar to that of many other academic libraries, the stated *Mission* of the William Allen White Library in part, is to provide “access to resources in print, multi-media, and electronic formats” (University Libraries and Archives, 2001). If students remain unaware of these resources, there is no access. This may be particularly true in the case of distance education as there is no “physical proximity” to a library in this learning environment (Ghandi, 2003).

Marketing may also pay for itself in the form of funding during the institutional budgeting process as a library as a cost center within a university competes for scarce resources. Edinger (1980) touches upon these points when she advocates for library marketing in this way:

If the library is seen by its clientele and onlookers as vital to the university or to the community, it will be less in the position of

having to justify the existence of its program and policies. . . . By actively marketing the library's services, the library can reach more potential users, encourage use of the library's resources, and work towards becoming an indispensable source of information for the community. (p. 328-329)

A marketing effort may also overcome what often faces libraries, a need for "brand identity." This is a marketing concept that refers to what consumers envision when they think of a product, service, or institution. It includes the look and feel of a library, its slogan and logo. A "brand identity" may also point to what a library does well or to the kinds of services it provides. Unfortunately, librarians are not very good at publicizing what they do or how well they do it. People are not aware of the amount of work that transpires in libraries and thus take information professionals and the work they do for granted. In this electronic age, to be able to sustain old customers and gain new ones, libraries must take a proactive approach to marketing their resources and services.

Many authors write about marketing principles and strategies in the context of libraries with four walls. Wolpert addresses issues associated with, and unique to, library services delivered at a distance when she writes "libraries should approach support to distance education as a new business opportunity, utilizing techniques of market evaluation and analysis" (1998, 21). She also discusses the need for a "brand identity" to create a unique look and feel for the library that becomes clearly recognizable by distance learning students.

Perhaps the greatest challenge academic libraries face in distance education is the potential loss of "brand identity." When students and faculty must visit the library to find what they need, the value of the library's products and services is immediately obvious. . . . One emerging threat to libraries' brand identity is the visibility and credit for the services and products they provide to distance learners. Where the physical library world provides constant reinforcement to the relationship between the library and the material and information a patron needs, the virtual library permits a patron to bookmark a site within the library's electronic connections and never again be reminded of how that product or service is made possible. . . . Unless a library has created a recognizable "look and feel" that clearly identifies its work, the work may not be attributed to the Library. (Wolpert 1998, 10)

Gandhi makes a strong case in recommending that planned marketing efforts also be extended to both faculty teaching distance courses and administrators. By collaborating with course instructors, librarians can recommend assignments that require library work. In addition, the product that we sell may not be known to adjuncts who so often teach in a distance environment. According to Gandhi, administrators may also not be aware of all of the issues, such as accreditation requirements and the indirect costs associated with course offerings delivered in a distance setting. "The increased visibility will ensure that librarians have a seat at the table when important technology and fiscal decisions related to distance education are made" (2003).

HOW TO CONDUCT A MARKETING CAMPAIGN

The literature offers a number of suggested strategies to library administrators and planners contemplating the development of a marketing campaign. These strategies are also applicable to distance services. The State Library of Ohio, in *Marketing & Libraries DO Mix: A Handbook for Library and Information Centers*, lists six elements of effective library marketing (1993, 8). *Self-assessment* is a process by which an information agency identifies the services that it provides and the level of quality with which each is delivered. *Market definition* is an activity during which the patron population is identified. During this phase of planning, the authors of the handbook recommend to library professionals that they categorize and segment the existing and future patron population, review their agency's mission statement to ensure that all patron groups are specifically named, and prioritize the needs of these constituent groups.

Product planning is a determination of what services are required by the library's patrons and the development of plans to deliver them. This information may be obtained through surveys, individual interviews, and focus groups. *Product creation* is the development of new and enhanced services. The keys to the successful implementation of a new product set are a focus on quality, the use of project management processes, flexibility during the planning process and frequent communications to patrons and management.

Selling is an ongoing process. In addition to informing patron groups of what services are available to them, selling also includes the actual delivery of high-quality service and the continuous evaluation and improvement of those services. *Closing the loop* is reference to the fact

that all of these named elements form a network. "The objective is to ensure that information flows freely through that network. Each element provides input to all of the others and receives their feedback. Closing the loop means you must keep each information path open and make certain that feedback is not ignored by customers, management, and the library staff" (State Library of Ohio 1993, 35).

Once a library has identified its market and has positioned itself, it is ready to develop strategies and tactics. Walters suggests a fundamental approach to marketing, known as the four 'P's, *product, price, place, and promotion*, terms coined by Philip Kotler (1986). A *product* strategy includes a clear identification of the services being offered, the features of those services, and how they might benefit customers using those services. *Pricing* is an exercise during which library administrators identify the actual costs of services being delivered and determine charges (if any) to the patron. *Place* simply refers to where a patron is to receive service. In the case of distance education students, this may be via the Internet, by mail, on the telephone, or through a local library. *Promotion* is highly visible. It may include such marketing strategies as advertising, direct mail, telemarketing, public relations, and special events.

Suzanne Walters in *Marketing: A How-To-Do-It Manual for Librarians* describes library marketing in terms similar to the steps identified by the authors of *Marketing & Libraries DO Mix*. She emphasizes the need for a mission statement that clearly states "who is to be served" (p. 3). Walters considers *market definition* and *product planning* as aspects of market research. She recommends in her approach, the notion of *positioning*. "The purpose of a positioning strategy is to create distinction in the minds of your customers between your library's product/service and other similar products/services. Unsupported claims to distinction do not work when promoting your service. . . . You should only promote what you can deliver" (Walters 1992, 33).

When looking at customers, the target market refers to not only those individuals that already use the services and resources of the library, but also those who do not. Thus, the needs of potential customers should be considered along with those of current customers. To those faculty and students at a distance who do not already use the services and resources of the library, the question needs to be posed, "Why not?" Do they have their information needs met elsewhere or are they simply not aware of what the library can offer to them? The answer to that question will provide valuable information to complete the marketing plan, to develop potential services, and to guide the acquisition of appropriate resources.

To be successful, the library needs to approach the resources and services from the view of the customer or to “walk in their shoes.” The staff, however, needs to be very honest with itself about the quality of service provided to students, especially those at a distance. If it is concluded that services are inadequate, the question, “Why not?” again should be considered. In working with distance learning communities, a library staff also needs to consider geographic factors and lifestyles when determining and marketing services and resources.

Lebowitz (1998) takes a slightly different approach as she defines library marketing strictly in the context of distance services. She recommends six components.

1. *An assessment* of the target audience and environment might include gathering information and data relative to the existing and future users of library services, faculty attitudes about and usage of the library, distance education program offerings, and course requirements.
2. *An analysis of user needs* and an examination of current marketing practices, is an evaluation of the skills and abilities of the target audience and the effectiveness of library promotion activities.
3. *A mission statement* articulates the philosophy of the library and/or department delivering remote services. A mission statement ought to identify specifically who is to be supported by the library.
4. *The development of objectives and goals* follows the formulation of the mission statement. This process might include a review of existing services and/or consideration of new remote offerings.
5. *An evaluation of the marketing mix* considers the 4 P's of marketing. In a remote service environment, the marketing mix may be very different. Product refers to service rather than to tangibles. Position or place may be subjective and reflects the perceived relevance of the library vis-à-vis the library user. Promotion may often require a visual representation of library service.

If materials are being developed specifically for the off-campus users, there are some questions which might be considered beyond that of informational correctness. For instance, is there a consistency about the materials that will identify them as directed toward distance users? Is the total package effective? Because first impressions are so important, it can be very advantageous to develop a constant visual image and perhaps a logo for off-cam-

pus students. . . . Having an effective package will draw attention to the services and will aid in the overall impression made by the library and the institution. (Lebowitz 1998, 217)

Price may also become an issue if the institution requires the recovery of costs associated with the provision of remote services.

6. *An evaluation* of the marketing plan consists of a review of its effectiveness as indicated by an increased awareness of library services by the user community, and by a determination of whether or not the library meets the needs of its remote-user base.

As mentioned earlier, the marketing plan will vary with the situation. It needs to identify key issues, serve as a way to mobilize resources and use them efficiently, and include methods to measure accomplishments or results. It is a policy document, a strategic planning document, a management tool, and an implementation document. The plan will also serve as an assessment tool with built-in evaluation processes and measures. Although there is not a set formula to follow, there are certain elements that should be included and particular questions that need answers. It is also important to remember that the marketing plan is never really completed as it will require updating and revision. This goes along with the fact that the planning process is just as important as the final plan. The process forces the library to consider its current situation and the future directions that it would like to go. Throughout the process, staff at all levels should be consulted and involved in creating the final product.

MARKETING AT EMPORIA STATE

Shortly after the survey was conducted, the faculty and staff of William Allen White Library participated in the process of strategic planning. Several of the core values that emerged from the process directly related to customer service and outreach. The strategic planning process allowed the library faculty and staff to evaluate the environment of the library, celebrate what was being done well, and develop goals to guide future improvements. Participants assessed the current services and resources of the library. A mission and vision emerged from the process to guide the library as it moved forward. And library employees determined that customer service or creating a "user-centered" library was a

priority. Providing good customer service includes making customers aware of what is available to them to meet their curricular and research needs.

The literature mentions many elements that make up a successful marketing campaign. One of the key pieces is a marketing plan. The final document written during the strategic planning process had elements that could be used by the library's faculty and staff in creating the marketing plan for both the William Allen White Library and more specifically for Distance Services. The first section of the marketing plan includes an assessment of the library and the environment surrounding it. It includes a SWOT analysis, strengths-weaknesses-threats-opportunities, that examines the strengths and weaknesses of the library along with the opportunities and threats that face it. These are the portions available in the Strategic Plan written for the library.

The sections following the Environmental Analysis in a Marketing Plan include a market analysis or information on the market to be reached; the goals and objectives to attain through the marketing campaign; marketing strategies to reach those goals and objectives; implementation details; and a final evaluation or assessment of the process and product. Because of internal changes within the library, the marketing plan for the William Allen White Library is still in the development stages and has not been formally completed. But some changes have taken place as a result of what was learned from the survey.

At the time during which the survey was conducted, services to meet the needs of distant learners had been developed and electronic resources purchased. Both services and resources were up and available, but intensive marketing did not occur.

The segment to be reached in a marketing campaign targeted to distance library services not only includes students, but others associated with distance learning. At Emporia State University, some of the distance learning programs are taught in cohorts, each having its own administrator and national faculty members. In these instances, not only do the cohort students need to know about services and resources available to them, but also those administrators and part-time national faculty members need to be made aware of what may be accessed from off-campus. Other programs are offered either online or through teleconferencing capabilities using faculty that are on the Emporia State University campus. These faculty members also need to be familiar with the services available to their students to assist them not only in the teaching of their courses, but also in their initial design.

Initial goals and objectives of a marketing campaign such as one at Emporia State might include the following:

1. Work with the Office of Lifelong Learning to identify distance learning students and faculty members to target with direct marketing methods to inform them of resources and services available to them.
2. Promote to students, faculty, and administrators currently involved in distance learning the research and curricula support tools and resources through a variety of methods. In this effort, especially target new faculty and those who are in the process of developing new courses to be offered at a distance.
3. Survey those involved with distance learning to discover their library related needs and their awareness of current library resources and services.
4. Identify students and faculty members that do not currently use the Emporia State University Library discovering how to meet their needs to encourage them to use what is available to them.

The next step is for the library to determine what strategies or action steps will be used to achieve the identified goals. Although the library has not completed this portion of the marketing plan at this time, strides have been made towards achieving some of the listed goals.

One of the findings of the Emporia State survey showed that users did not have a clear idea of where help might be found. Emerging from the aforementioned strategic planning process was the conclusion that there was not a clear contact person for distance library services. This was remedied in early 2001 with the appointment of a distance services librarian. She is not only the point of contact for distance students but is also the primary "marketer" of the library services for distance education students. In this role, she has developed press kits and brochures, both in electronic and print formats. The distance services librarian continually updates these, being sure to highlight services and resources specifically available to distance learning community members. This brochure is distributed on a wide basis and is also made available through the library's Web site. The library also set up telephone access to the library and its staff through a toll free number. Although this seems like a very simple or elementary step, the amount of use that the toll free service has received justifies the cost and causes wonder that its acquisition was not made earlier. The number is publicized through the

distance services brochure and also listed prominently on the library's Web site.

The library at Emporia has also taken some steps to establish a "brand or graphic identity." Graphic identity refers to such things as a two- or three-dimensional logo, a slogan, typography, or the use of color. Following the survey in 2001, the library at Emporia State University undertook the task of creating such an identity for itself. Library staff worked with a graphic designer to create a logo for the University Libraries and Archives. This logo is present on the library's home Web page and is starting to appear on library publications. The library staff adapted the slogan of the Department of Lifelong Learning, "Students Going the Distance," to reflect the mission of the library. The library now uses the motto "Helping Students Go the Distance" in its brochures. Soon it will also be present on the redesigned library Web site for distance learners.

For distance students, faculty, and support staff, one of the most important points of service is the library's Web site. This may also be the only "view" of the library at Emporia that some students see. As such, it needs to be clear, informative, and easy to use. Using the William Allen White Library Web site as a marketing tool also allows library services to reach beyond its walls to those faculty and staff that are at a distance from the main campus.

When creating a library Web site for distance users, it is not necessary to reinvent the wheel. During the planning stage of a redesign of the main site of the Emporia State University Libraries and Archives, a Web Advisory Team met and looked at different library sites, selecting those elements that appealed to the team. These choices formed the basis for the Web site redesign. The team designed a banner with crucial links to carry throughout the Web site. Frequently used items and answers to often asked questions enjoy top level status on the site. Library faculty and staff are working to continue to create more informative pages along with online tutorials and research guides to assist distance users in finding resources and using the library. A complete redesign of the distance services page is also now underway. A persistent link to this page is on the courseware used by faculty members in teaching distance learning courses. Having an effective Web site and making crucial information available to users through it, allows libraries to take advantage of technological advances to not only promote the library, but also provide the library with the means to reach out and "virtually" pull users into the library.

CONCLUSION

Although the Emporia State University Libraries and Archives has come a long way since the initial survey completed in 2000, it still has some distance to go before the marketing campaign targeting distance learners is considered a success. The survey results were very informative and provided a foundation that the library continues to build upon. Marketing is not a linear process that has a clear beginning and end. It requires ongoing evaluation and openness to changing circumstances. Such a change might be in the demographics of a distance learning population. At Emporia State, this data is easily gathered by surveying various population groups enrolled in distance learning and by studying statistics gathered by Emporia State's Office of Lifelong Learning.

Needs may also change over time. As such, it would be advisable to inventory and assess services and resources as they are offered. The library should therefore be prepared to offer new services and strategies when it becomes apparent that the present mix is not meeting the ever-changing needs of a distance learning population.

At Emporia State, the librarians work closely with individual faculty, departments, and schools. They work to stay informed relative to distance education offerings within their areas of liaison. By communicating frequently with their client-faculty, they can advise the distance services librarian of opportunities to promote resources and services. The distance services librarian also collaborates with the department that coordinates the technological infrastructure of distance learning. In addition, during various planning cycles, she facilitates "brown bag" workshops for online faculty to encourage them to integrate library services with online courses.

There are other ways in which the library staff at Emporia can become more involved. Orientation sessions for distance learners using various technological methods such as streaming video and either asynchronous or synchronous chat may be developed. The Library will continue to add to its course reserves materials that are available electronically. In the near future, after policies are finalized and approved, staff will work with more faculty members to offer e-reserves as a part of their online or distance learning courses.

In the past, libraries have not taken a very proactive stance with regards to marketing themselves and their services. In our current technological age, when developments such as the World Wide Web compete with the library as providers of information, libraries, to remain competitive, must become more active in making people aware of what they

have to offer. This is especially true in a market where distance learners do not necessarily have the “physically proximate” reminder of library resources. It has also been shown at universities such as Emporia State that the expectations of these students are low as they concern library services.

Using and adapting marketing techniques from the business world is one of the keys to remaining competitive in today’s technological environment. Technology has not only changed how the library can market its services, but also to whom the marketing can be targeted. The importance of promoting libraries and what we offer is backed up by the recent proliferation of articles concerning marketing. As the Association of College and Research Libraries (ACRL) emphasizes in its literature for “The Campaign for America’s Libraries @ your library: Toolkit for Academic and Research Libraries,” academic libraries have important messages that need to be publicized widely. ACRL stresses that librarians are the best advocates for libraries and services offered by libraries.

The messages that the Association developed on behalf of its membership may be used by any academic library as a starting point of a marketing campaign. These are as follows:

- College and research libraries are an essential part of the learning community.
- College and research libraries connect you with a world of knowledge.
- College and research libraries are investing in the future, while preserving the past (Association of College and Research Libraries 2003, 4).

As ACRL points out in its campaign materials, academic libraries have a great story to tell regarding their services and resources. Librarians now need to work even harder to get the word out to distance learning communities without proximity to a “bricks and mortar” library about what is available through the presence of a “virtual” library.

REFERENCES

- Association of College and Research Libraries, @ Your Library Task Force. “The Campaign for America’s Libraries @ your library: Toolkit for Academic and Research Libraries.” American Library Association, 2003.
- Association of College and Research Libraries, Standards Committee. “Information Literacy Competency Standards for Higher Education.” American Library Association,

2000. <<http://www.ala.org/ala/acrl/acrlstandards/informationliteracycompetency.htm>> (accessed June 19, 2004).
- Association of College and Research Libraries, Distance Learning Section. Guidelines for Distance Learning Library Services. American Library Association, 2000. <<http://www.ala.org/ala/acrl/acrlstandards/guidelinesdistance.htm>> (accessed June 19, 2004).
- Edinger, J. "Marketing and the Academic Library." *College & Research Libraries* 41, no. 4 (1980): 328-29.
- Emporia State University. University Libraries and Archives. "Mission." <<http://www.emporia.edu/libsv/menu1/libinfodep/mission.html>> (accessed June 19, 2004).
- Fisk, Jim. "A Community Analysis and Library Services Needs Assessment of the Students of the School of Library and Information Management of Emporia State University: An Executive Summary." Unpublished research project, School of Library and Information Management, Emporia State University, 2000.
- Ghandi, Smiti, "Academic Librarians and Distance Education: Challenges and Opportunities." *Reference and User Services Quarterly* 43, no. 2 (2003): 138-155.
- Kotler, Phillip. *Principles of Marketing*. 3rd ed. Englewood Cliffs, NJ: Prentice Hall, 1986.
- Lebowitz, Gloria. "Promoting Off-Campus Library Services: Even a Successful Program Needs a Marketing Plan." *The Eighth Off-Campus Library Services Conference Proceedings*. Mount Pleasant, MI: Central Michigan University, 1998.
- McDonald, Malcolm H. B. and Warren J. Keegan. *Marketing Plans that Work*. Boston, MA: Butterworth-Heinemann, 1997.
- The State Library of Ohio and H. Baird Tenney et al. *Marketing and Libraries DO Mix: A Handbook for Librarians and Information Centers*, Columbus, OH: The State Library of Ohio, 1993.
- Walters, Suzanne. *Marketing: A How-To-Do-It Manual for Librarians*, New York: Neal-Schuman Publishers, Inc., 1992.
- Wolpert, Ann J. "Services to Remote Users: Marketing the Library's Role." *Library Trends* 47, no. 1 (1998): 21-41.

The Balancing Act: Collection Development in Support of Remote Users in an Extended Campus Setting

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As the concept of distance education becomes more prevalent in higher education, the provision of library information resources to remote users becomes extremely important, whether the information sources come from the main campus library, an off-campus collection, or a virtual library. University library collections, in whatever format, developed to serve off-campus users, require the same level of planning and flexibility as those collections that are developed for the main campus library. This article examines an approach to developing and maintaining collections for remote users describing the experiences of a specific off-campus library.

LITERATURE REVIEW

A review of the literature found very little on collection development to serve off-campus students. There were several case studies which reflected

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varying methods of serving remote library users in the United States [Kemp and Pastine (1991), Johnson (1987), Peterman and Schultis (1993)] and in Canada [Angel (1986), Kelly (1987)]. Two articles on collection development for branch libraries [Lanier (1991), Segal (1991)] also contained pertinent related information.

In overview, much of the literature focuses on some of the perceived differences between traditional collection development processes and collection development to serve extended campus library users. These perceptions can be summarized as:

1. Procedures developed to provide materials to off-campus users must be more timely and more flexible than those in place for the main campus, in order to better respond to rapidly changing local programs and needs.
2. Standard policies proscribing duplication of books and serials often must be modified or eliminated when dealing with a large off-campus user population; a certain amount of duplication is advisable when on-campus and off-campus programs are similar, and users are competing for the same resources.
3. Collection development for off-campus users often lacks the well-planned systematic approach of main campus collection development; it is more difficult to anticipate future demands and needs than with an established collection and curriculum.

Experience with the Monterey County Campus of San Jose State University has shown that while these differences do exist, they are mainly differences of scale and complexity, and can be at least partially alleviated by a conscious planning and implementation process. Policy and procedures for off-campus collection development should parallel those of the main campus, while retaining a strong element of flexibility and autonomy.

BACKGROUND

San Jose State University (SJSU) in Santa Clara County, California, the oldest institution in the 22-campus California State University system, has long provided extension programs for residents of Monterey, Santa Cruz and San Benito Counties. Monterey County, the most populous, diverse and distant of these counties, had no public four-year institution of higher education for most of the 20th century. Residents seeking a baccalaureate degree had the options of relocating, driving from 50-200 miles to reach the nearest campus, or attending a private institution. For many years, SJSU

offered course work to off-campus students via satellite TV and through classes held at local sites. In the 1980s, increasing demand for distance education in the tri-county area led to a decision: San Jose State would establish an off-campus center in Salinas, 65 miles from the main campus.

From the beginning, SJSU librarians played a major role in the planning process for the new Monterey County Campus (MCC) Library. The Associate Director was an active member of the Monterey County Campus Academic Program Committee, and advocated the philosophy and guidelines of library service to extended campus communities, as expressed in the *ACRL Guidelines for Extended Campus Library Services*:

The parent institution is responsible for providing support which addresses the information needs of its extended campus programs. This support should provide library service to the extended campus community equitable with that provided to the on-campus community.

The library has primary responsibility for identifying, developing, coordinating, and providing library resources and services which address the information needs of the extended campus community. . . . Effective and appropriate services for extended campus communities may differ from those services offered on campus. The requirements of academic programs should guide the library's responses to defined needs. . . .

The library should provide professional and support personnel sufficient in number and of the quality necessary to attain the goals and objectives of the extended campus program including: (1) a librarian to plan, implement, coordinate, and evaluate library resources and services addressing the information needs of the extended campus community. . . .

The library should provide facilities, equipment, and communication links sufficient in size, number, and scope to attain the objectives of the extended campus programs. Arrangements may vary and should be appropriate to programs offered. Examples of suitable arrangements include but are not limited to:

1. access to facilities through agreements with a nonaffiliated library;
2. designated space for consultations, ready reference collections, reserve collections, electronic transmission of information, computerized database searching and interlibrary loan services;
3. a branch or satellite library.¹

The breadth of the courses planned for this off-campus program and the geographic concentration in the Salinas area suggested that the establishment of a library in the off-campus location was the most effective means of providing library services to students. The local libraries did not have collections suitable for supporting the upper division and graduate course work to be offered in the program, nor could they provide the information services that would be needed by these off-campus students.

The MCC library was intended to provide students with immediate access to reference assistance, bibliographic tools, and basic course reserve materials, and a small collection of pertinent books and periodicals. Quick access to the collection of the main campus library through an electronic link to the library's online catalog, electronic mail, and daily courier service were essential to the plan. This library would function as a branch of the main campus library, relying on the main library for technical and support services, in-depth collections, interlibrary loan, and administration.

The stage was set and the players were ready for the curtain to rise on a new collection at a new location. How was this collection to be established and maintained? Using traditional collection development processes adapted to an ever-changing situation, initial and ongoing development and maintenance of the Monterey County Campus Library collection has proved very successful, if not without problems and challenges.

COLLECTION DEVELOPMENT PROCESSES

Needs Assessments/Evaluation

One of the basic processes in developing collections for libraries is needs assessment. For remote users, the needs assessment process consists of two parts: the needs identified prior to the opening of the off-campus library and those needs that may change and evolve as the library grows.

In the initial needs assessment, it was clear that the off-campus student would bring to the educational environment a different set of information needs than the traditional on-campus student. In the case of the proposed Monterey County Campus, the students were usually older, attending university on a part-time basis, carrying major employment and/or family responsibilities and highly motivated. Thus, the demands for immediate information support were critical and meeting these demands was an important factor in student success.

The intended academic program to be offered at this campus was in many ways parallel to the program on the main campus in these specific

subject areas: liberal studies, social sciences, education, social work, and later business. Programs in librarianship and natural sciences eventually did not materialize although consideration was given to these in the initial collection development discussions. The intent of the specific collection for the MCC library was to provide upper division and graduate library materials to supplement the resources that were available locally in the community colleges and public libraries.

After the core collection was developed, ongoing needs assessment was carried out in a number of ways, both formal and informal. Before the first semester began (Fall 1990), the Monterey County Campus Librarian surveyed the faculty by questionnaire, following up with consultations by telephone and in person. Course content and assignments for the initial semester were considered and compared to the core collection; needed supplemental materials for reserves were quickly ordered and processed. This three-part communication proved essential and effective, and was repeated at the first of each succeeding semester.

As students began their assignments, library staff logged each request for information or assistance on a reference intake form, noting subject area of the request, source of information, and any referral or ILL. This process led to many discoveries about gaps or inadequacies in the collection. At the end of the Spring 1991 semester, students and faculty were surveyed using an evaluation form, which also provided another opportunity to express unmet needs or suggestions for additions to the collection.

After the first year of operation, it became evident that while there was constant use of the reference collection and finding tools (both print and electronic), the journal collection was not heavily used. Since the MCC collection contained reference and reserve materials only, high demand for circulating books from the main library was expected but statistics proved that requests for journal articles far outweighed monograph requests. In 1991-92, there was a study of Interlibrary Loan patterns for journal requests, leading to cancellation of some titles, ordering of several others, and consideration of full-text resources which were gradually added to the collection.

As new programs were added at MCC and others eliminated, there was almost constant reassessment of needs and reevaluation of the collection in light of those needs. An additional dimension resulted from the cooperative/reciprocal borrowing arrangements made with local community college libraries. There was frequent consultation with local library colleagues about their observations of the needs of SJSU students using their respective institutions.

In 1994 an external evaluation of the MCC Library was performed by a

graduate student in the SJSU Library Science program. That semester-long assessment resulted in primarily positive evaluation which also listed several specific sources for addition to the collection. Thus, although the librarians developing the collection could not know at the beginning that the resources selected met all the needs of the proposed clientele, it became evident throughout the years that their "guesses" had been relatively accurate. Following the traditional collection development principles did indeed foster the requisite balance.

Policy Development

The intent of this off-campus library was to provide immediate access to reference material and quick access to the campus book collection. The planning document for the off-campus center library did provide guidelines, as a result of the initial needs assessment of clientele and programs, for the content of the collection:

1. A basic collection of reference tools and indexes so that on-site staff could answer general reference questions.
2. Copies of reserve materials needed for required course reading. These would be purchased for the center collection rather than borrowed from the campus library.
3. A small core collection of current periodicals with microfilm backfiles where appropriate to support the major curricular programs.
4. A core collection of books to support the major curricular programs.

A separate written collection development policy was never written for the Monterey County Campus Library. The guidelines were the core policy statement about the collection supplemented by the written subject policies of the relevant curricular programs (Education/Psychology, Business, Social Work) on the main campus.

Duplication of resources, while not a usual facet of cost-effective collection development policies, was felt to be necessary in the MCC situation, to provide the most timely access to materials needed by both on-campus and off-campus students. As the collection grew, many items were added in Salinas that were not owned in San Jose, reflecting the varying needs of the extended campus community. For example, in Monterey County there is a large Hispanic population, and many off-campus curricular programs reflected the need to serve this population: Bilingual and Multicultural Education, Migrant Education, Bilingual Counselor Education, etc. Therefore, at MCC one could find such resources as *Journal of Multilingual and Multicultural Development* and *Bilingual Special Education Dictionary* which were not in the main campus collection.

Textbooks acquisitions was another area where some variation from standard collection development policies was deemed necessary. Generally, textbooks are excluded in the SJSU Library's Collection Development Policy. In the first two years of MCC's operation, there were many logistical problems involved in course scheduling, faculty assignment, and delivery of textbooks to the satellite campus. A special expedited procedure for ordering "rush reserves" was developed, and some textbooks were added to the MCC reserve collection. As operations at MCC became more regular and predictable, the off-campus library policy on textbooks fell into line with that of the main campus.

Selection

At SJSU's Clark Library, individual selectors are responsible for collection development to support specific areas of the curriculum; each librarian has faculty liaison responsibilities, serves on campus wide curriculum committees, and belongs to a library wide subject selectors' group. Reference materials are selected by a Reference Collection Development Committee as well as by individual subject selectors.

Selection of materials for the opening day collection of the off-campus library was based on the guidelines as noted above and was a collaborative effort of the main campus librarians whose subject specialties were in the curriculum to be offered at the off-campus center—education, psychology, social sciences, business, librarianship, and general reference. At the time the initial collection was developed, the recruitment for the off-campus librarian was in process, thus, this librarian was not able to participate in the core collection selection process. The Associate Director continued in her role as an active member of the Academic Planning Committee and was able to keep the Monterey County Campus Library Collection Development Committee aware of the evolving academic program that had to be supported with library resources.

A specific allocation of \$45,000 for the initial collection was made from the off-campus budget and divided among reference books, indexes, and periodicals. Attempts by the librarians to find "opening day reference collection" lists proved impossible. The starting point for selection was the controlled use reference list of the main campus library. This list was supplemented by the major library sources for the curricular areas being taught. In addition, duplicate reference sources from the main collection supplemented new purchases. Visits to other off-campus center libraries were intended to increase knowledge of such collections. Selection of the periodical collections followed similar methodologies again emphasizing the core literature of the academic subjects being offered.

After the off-campus library opened, the Monterey County Campus Librarian became responsible for selecting all materials for the reference and reserve collections, whether monograph, serial, or electronic resource, covering a range of subjects from education to business to social work. Distance from the main campus and the press of local responsibilities has made it difficult, if not impossible, for the MCC Librarian to serve on curriculum committees or attend subject selectors' meetings. However, minutes from meetings of the Social Science Selectors Committee, the Collection Development Steering Committee, and other general informational materials for selectors have been routed to MCC, proving very helpful. Maintaining regular communication with the on-campus selectors for Education, Psychology and Business, who helped establish the original MCC collection, has also been essential.

For ongoing selection of resources for the Monterey County Campus library the weekly trips to San Jose to attend department heads' meetings have been fully utilized providing the off-campus librarian with the opportunity to check the incoming reference shelves, to talk to colleagues, and to peruse publishers' catalogs, bibliographies, and other materials not owned in Salinas. In Salinas a dial-up link to the online acquisitions system provided current information about what other selectors had ordered.

In ongoing selection, the MCC Librarian used many traditional tools: reviews in professional journals such as *Library Journal*, *Choice*, *RQ*, *College and Research Libraries*; subject bibliographies; ALA and Library Journal annual lists of best reference books; publishers' catalogs, brochures, and exhibits at conferences, etc. An additional resource was the regular meetings and activities of the Reference Committee for MOBAC (Monterey Bay Area Cooperative Library System, a consortium of public, academic and special libraries in Monterey, Santa Cruz and San Benito Counties). Besides discussion of new resources at monthly meetings, this committee sponsors an annual Hands-on Reference Workshop, a showcase for display and discussion of new and useful reference titles.

Financial Management

As the MCC budget was a separate budget unit from the main campus, the cost of the opening day collection did not cause a negative impact on the main library's budget. Unfortunately, a collections budget of sufficient size for the first year of operation of the off-campus library did not materialize. Thus, some way had to be found to support the off-campus center library on a continuing basis.

Since San Jose State University's Full Time Equivalent Student load

had been increased to reflect the off-campus center and thus the main library's collections budget was increased by a like amount, a formula was devised to provide the off-campus library with a percentage of the combined collections budget. This has averaged about \$22,000 for each of the five years of operation. A small amount of library support in the MCC's budget has been used to provide online searching of bibliographic and other databases, as well as other technological support.

Although for the five years of operation of the off-campus Center library, the main library allocated funds to maintain the periodical collection and to purchase core books, the management of those funds was solely at the discretion of the MCC librarian.

ISSUES AND PROBLEMS

Lest it appear that the collection development process at SJSU Monterey County Campus has been entirely seamless and smooth, it is important to mention several areas which, while problematic to all libraries, are heightened or intensified by the off-campus situation.

Faculty Liaison

For some off-campus programs, regular faculty may be assigned to the branch facility; however, more commonly faculty are part-time and/or adjunct personnel who are present on-site only at the time their classes are taught. In other cases, faculty may teach all courses through satellite television or other remote methods, so that they are never physically present at the off-campus location. Clearly, this makes communication with instructors concerning course content and resource needs extremely difficult. Written communication, via memo, questionnaire or e-mail, is an initial step, but follow-up oral communication by phone and/or in person is often more effective.

It is the off-campus librarian's responsibility to initiate and maintain regular communication with teaching faculty. A library open house or series of tours during the first weeks of class is one way to make personal contact with faculty and students alike. Library instruction sessions tailored to individual courses help to solidify relationships. If there is no curriculum or faculty committee associated with the extended campus, perhaps the librarian can take the lead in forming such a group. The upside of a potentially isolating situation is that the shared experience of off-campus faculty and staff can be transformed into a positive, collegial atmosphere.

At the same time, it is important to include the off-campus librarian in as many decision-making bodies on main campus as is feasible. The extended campus librarian who works in complete autonomy and isolation is probably not providing the most effective overall service.

Maintaining Awareness of New Sources

Again, this is a communication issue in which the off-campus professional must be proactive in establishing and maintaining connections with information sources, be they colleagues, vendors or other resources. The librarian who feels hampered by distance in making these connections can now rely on electronic communications: e-mail, listservs, online discussion groups with librarians throughout the country and the world. Two of the services used most frequently for collection development and continuing awareness by the MCC Librarian are OFFCAMP-L (OFFCAMP@CMS.CC.WAYNE.EDU) and LIBREF-L (LIBREF-L@KENTVM.KENT.EDU).

Identifying publishers whose works are most relevant to individual off-campus programs, and getting on mailing lists for catalogs and announcements, is another basic step to take. Approval plans for academic libraries frequently do not include reference works, and the approval plan in place at SJSU's Clark Library was not modified to include the Monterey County Campus collection. However, it may be possible to negotiate with vendors in adjusting approval plans or creating a special plan more tailored to the off-campus library needs.

Ownership vs. Access

As budgets and purchasing ability shrink, librarians are increasingly concerned about the relationship between ownership and access. A related issue is the balance between print and electronic resources. Today many librarians find themselves choosing between print, CD-ROM, and online formats for the same information, sometimes resulting in the decision to retain all three.

At Monterey County Campus, space and budget limitations necessitated an extremely selective acquisition process, so that only the most essential materials won a place on the shelves. It is important to make the right decision during the selection process rather than relying on use/circulation/Interlibrary Loan studies later, although this is obviously easier said than done.

The ACRL Guidelines state that off-campus students must have access to collections of sufficient breadth and depth to satisfy curricular require-

ments, while indicating that library service to extended campus communities must be *equitable* with that of the main campus.² In an off-campus setting, the focus thus shifts to providing timely, cost-effective *access* to information. The options are many, ranging from cooperative agreements with nearby institutions, to interlibrary loan and document delivery, full-text services, etc. At the Monterey County Campus library, the acquisition of full-text CD-ROM and online resources has been found to be an effective solution to many concerns about providing equitable access to information.

Technology: The Electronic or Virtual Library

Over the last 5-10 years, sweeping advances in electronic technology have made possible great enhancements in library service to remote users. Fax machines, scanners, full-text electronic services, dialup access to online catalogs and remote databases, the ever-expanding Internet; all have been beneficial in bringing information to the user rather than requiring the user to travel to the information source. Electronic technology, especially when newly introduced, is certainly not without its problems of cost and implementation, as Zietlow and Kragness relate.³

Demas proposed an interesting conceptual and organizational model for collection development for the electronic library.⁴ He describes the methods developed at Cornell's Mann Library for integrating electronic publications into the library's resources and services. Key to this process is the development of "genre specialists" who have expertise in a particular information genre (e.g., multimedia, full text, etc.), and the establishment of a cross-functional selection review group which provides coordination and collaboration throughout the library in the selection and integration of new formats.

Whatever the process, it is essential that the extended campus librarian play a strong role in selecting and implementing electronic resources, constantly representing and advocating the needs of the remote user to the main campus community. Indeed, the off-campus librarian may take the initiative, originating or participating in pilot projects and grant proposals, perhaps in cooperation with local institutions and organizations with similar interests and needs. In Monterey County, there have been opportunities to participate in NREN (National Research Education Network) and Cal-REN (California Research Education Network) grant projects aimed at establishing a national electronic library for the environment; to work with local libraries in providing training for public Internet access; to cooperate in regional library projects such as the production of a union list of CD-

ROM products and an informational brochure on the Internet. The possibilities are endless, and endlessly changing.

What has become of the Monterey County Campus Library? With the closing of Fort Ord in Monterey California, the decision was made to establish the twenty-second California State University campus on that site. The collections as developed by the librarians at the main campus of San Jose State University and the off-campus librarian have been transferred to California State University at Monterey Bay (CSUMB) and will become the basis of the collection being developed for that library. The CSUMB Library is likely to become a pioneer in collection development for the electronic library.

CONCLUSION

Providing resources to support remote users is a balancing act. The librarian must constantly weigh the needs of off-campus students versus the larger on-campus needs, maintain a balanced budget which provides for the appropriate range and proportion of subject resources, carefully consider the relationship between ownership and access and the balance between print and electronic resource, and be prepared to adjust any of these elements at any time in response to the changing needs of the extended campus community.

By following the standard collection development processes outlined above, while retaining flexibility, a sense of humor, and a willingness to learn from one's own and others' experience, the professional involved in collection development in an off-campus setting may maintain balance and provide the best possible support and service to the extended campus community.

NOTES

1. "ACRL Guidelines for Extended Campus Library Services," in *College and Research Library News* (April 1990): 354-355.

2. *Ibid.*, 354.

3. Ruth Zietlow and Janice Kragness, "Implementing a Virtual Library for Off-Campus Students," in *The Sixth Off-Campus Library Services Conference Proceedings* (Mount Pleasant, MI: Central Michigan University, 1993): 324-325.

4. Samuel Demas, "Collection Development for the Electronic Library: A Conceptual and Organizational Model," *Library Hi-Tech* 12:3 (1994): 72-75.

BIBLIOGRAPHY

- "ACRL Guidelines for Extended Campus Library Services." *College and Research Library News* April 1990, 353-355.
- Angel, Michael. "Collection Development and Acquisitions for Service to Off-Campus Students." *Library Acquisitions: Practice and Theory* 10 1986, 193-198.
- Demas, Samuel. "Collection Development for the Electronic Library: A Conceptual and Organizational Model." *Library Hi-Tech* 12:3 1994, 71-80.
- Fisher, Raymond F. "Separate Library Collections for Off-Campus Programs: Some Arguments for and Against." In *Off-Campus Library Services*, edited by Barton M. Lessin. Metuchen, NJ: Scarecrow, 1991, 149-160.
- Johnson, Jean S. "Collection Management for Off-Campus Library Services." *Library Acquisitions: Practice and Theory* 11 1987, 75-85.
- Kelly, Glen J. "The Development of Acquisitions and Collection Services for Off-Campus Students in Northeastern Ontario: An Important Library Collection Development Issue or Merely an Issue of a More Efficient Materials Handling and Delivery System." *Library Acquisitions: Practice and Theory* 11 1987, 47-66.
- Kemp, Barbara E. and Maureen Pastine. "Developing Branch Campus Libraries: The Administrative Perspective." In *Off-Campus Library Services*, edited by Barton M. Lessin. Metuchen, NJ: Scarecrow, 1991, 202-208.
- Lanier, Don. "Centralized Collection Development and Branch Acquisitions." In *Vendors and Library Acquisitions*, edited by Bill Katz. New York: The Haworth Press, Inc., 1991, 105-114.
- O'Dell, Judith E. "Library Service to Non-Resident Students: Its Impact on Campus Libraries." In *The Sixth Off-Campus Library Services Conference Proceedings* Mount Pleasant, MI: Central Michigan University, 1993, 193-198.
- Peterman, Thomas W. and G. Ann Schultis. "Providing Library Support for Distance Learning: Acquisitions Issues." In *The Sixth Off-Campus Library Services Conference Proceedings* Mount Pleasant, MI: Central Michigan University, 1993, 199-204.
- Segal, Judith. "Psychology/Psychiatry Collection Development: The Social Work Branch Library." *Behavioral and Social Sciences Librarian* 11(1) 1991, 75-83.
- Shontz, David. "Coordinating Collection Development and Use: Psychology at the University of Florida Libraries." *Behavioral and Social Sciences Librarian* 11(1) 1991, 85-95.
- Zietlow, Ruth and Janice Kragness. "Implementing a Virtual Library for Off-campus Students." In *The Sixth Off-Campus Library Services Conference Proceedings* Mount Pleasant, MI: Central Michigan University, 1993, 323-327.

Local or Remote Access: Choices and Issues

Nancy M. Cline

As research libraries move toward a new service paradigm, there is increasing discussion of *local systems* and *remote users* and growing confusion about what these phrases mean as we work to provide more electronic resources to our users.

The need to access more—and more diverse types—of electronic information resources is introducing as many new issues for library management teams as it does for users. There is, for example, heightened concern that in purchasing electronic access we will be eroding the basis by which we evaluate research libraries—namely, the collections; concern that we are paying money for things that do not ultimately exist as objects in our institutions' inventories; concern that we will be overwhelmed with new or additional users, or that users will no longer need our services and will seek direct access to what they need. And there is simply the increasing anxiety that relates to the phenomenal rate of change affecting research libraries today.

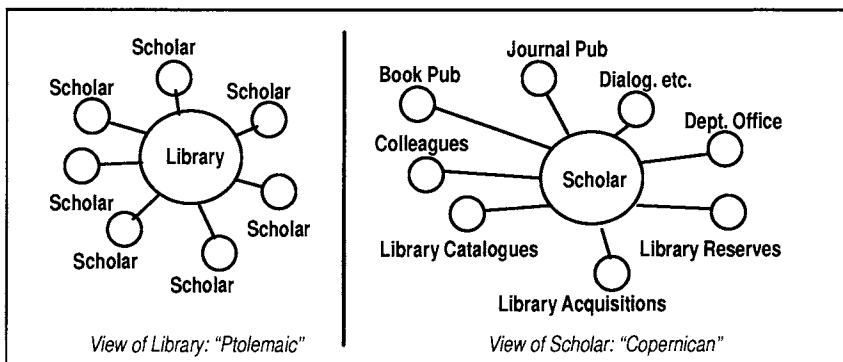
We are faced with more choices, and there are many significant components of the decision-making process. Our enterprise—academic and research libraries—is undergoing rapid and important change. It is important that we engage fully in the process to make certain that the outcomes benefit our students, faculty, and others we serve.

To lease or buy? This question surfaces constantly in terms of automobiles and housing, and has now become inescapable in libraries as we look to fulfilling the information needs of our respective clientele. The question

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takes on larger dimensions as we consider whether an electronic information resource should be made available *locally* or accessed *remotely*. In the contemporary information context, we are seeing these words lose their meanings.



Sack, John R., *College and Research Libraries*, November 1986, p. 539.

I use here an illustration from John Sack's article "Open Systems for Open Minds: Building the Library Without Walls," published eight years ago. It challenges us to rethink the expectations of scholars as we move away from the "library as a place" to interacting with users in the electronic setting. It is useful as a concept, an image, as we think about the changing paradigm for services.

TWO PERSPECTIVES: THE ELECTRONIC RESOURCE AND THE USER

The question of local versus remote can be considered from two completely different perspectives—the electronic resource itself or the scholar, the user. Let us first explore these perspectives because they are important in our planning.

From the perspective of the electronic resource, it may be considered local when it is physically acquired by the institution and made available as (a) a stand-alone system (e.g., CD-ROM database); (b) a CD-ROM database on a LAN; (c) a networked CD-ROM within a library; or (d) a tape file loaded on the library's computer or campus network. However, with exception of the stand-alone CD-ROM, these configurations may support remote user access, e.g., through dial-up access to a CD-ROM network.

An electronic resource may be considered remote when it is used through a contract arrangement but is housed offsite and accessed by a variety of means (e.g., phone lines, public access network, multiple institution networks, or the Internet). However, the institution may require its users to be onsite to access the resource and may choose not to provide remote user access where access is beyond the confines of the library. At Penn State, an example would be the Dow Jones News Retrieval Services; the electronic resource is remote since it resides on the Dow Jones computer, but the access is limited to local use from a dedicated terminal in a library reference room.

From the user perspective, however, an electronic resource may be considered local when access is tied to a precise physical location (e.g., terminals within the library). It may be considered remote when access is available from a number of physical locations—meaning that one can use it remotely from the comfort of home, the residence hall, an office, etc.

At the outset, we already have the potential for added confusion in the simplest of terms—remote and local. In planning and budgeting discussions, it is important that we have a common understanding of which perspective we are considering when discussing the choices between local and remote access. For today's discussion, I maintain we must think in terms of the user. As we move to a new paradigm of service, the scholar must be placed at the center of our thinking.

What do we already know about user needs and expectations? What does the feedback from users indicate? Almost without exception, they tell us they want more access, both in terms of the scope of electronic choices and the diversity of access points to those resources. They are clearly in favor of having more information resources accessible locally, e.g., from wherever they are working!

User Needs and Satisfaction

In most cases, the choices which libraries make regarding electronic resources are tied to perceptions of user needs and satisfaction. Issues such as reliability, speed of response, hours of access, hours of availability, level of detail, and ease of use are often cited as key factors.

Products and the Operating Environment

Next we can look at another array of choices—those describing the environment in which a product can be used. Often, at least in the current marketplace, the product itself dictates constraints. There may be limits to

the technology, limits to the software and networking capabilities, or limits which the producer chooses to put in place, such as the number of concurrent users. These choices of an operating environment can range from stand-alone systems; local area networks in a closely defined physical setting; local area networks in a physically distributed setting; institutional networks (single campus and multiple campus); access from remote sites into an institutional network; public access networks; multiple institution networks; the Internet, etc.

How many different types of information resources can be used in the current computing and networking environment? How many do you intend to offer? There is a growing array, including OPACs, bibliographic and indexing tools, statistical resources, and full text, image, and audio databases. How these resources are made available can include a range of options from open sharing among network participants (following the basis of the traditional library model) to the pay-as-you-use models. So, not only the type of information resource but also cost issues will be factors in determining whether to mount resources locally or to rely upon a database that is mounted at another site.

Many of the constraints result from the manner in which the information providers choose to sell or lease the information resources. The question may be less one of location of the resources and more one of who controls the pricing structure. Achieving reasonable agreements for the use of electronic information resources takes negotiation and compromise.

Service and User Populations

Finally, and perhaps foremost, there are decisions about who will be served. Who will be provided access to these resources? How many can be accommodated? As libraries make choices about which information resources to provide in networked settings, we are finding that we must often make choices or determine priorities among the constituencies served by our institutional budgets. For academic libraries, students and faculty lead the list. For other research libraries, the clientele may be different. For all of us, there is a growing set of questions about how broad a base of users can be served. And there is growing concern that the needs of independent scholars, those without specific institutional affiliations, could be overlooked in the planning of networked libraries.

All these factors represent choices facing our libraries. Each category needs careful deliberation in the context of the institution's mission, its organizational characteristics, and its budget.

COSTS—OBVIOUS AND NOT SO OBVIOUS

The total costs are often hard to determine. To acquire a specific database product for use only at one's own institution may appear the simplest route, but even in this instance, there are often complicated variables to assess.

If one is planning to acquire a database for mounting on a local system, costs will include, for example, the cost of the database, of storage on the system, and of indexing or mounting special software. They will also include staff costs in developing access capabilities, preparing instructional materials, etc. On the other hand, if one plans to access the database via another facility, many costs will be determined by fees set by the provider.

For libraries, it is critical to identify a predictable annual cost in order to manage budgets for these resources (since costs are not typically passed on to users). The costs of people—staff and librarians—throughout the process will be among the hardest to determine.

Another difficult cost to compute is the cost borne by users. The productivity of faculty and students is a very real factor in a research context. Saving them from hours of labor is a significant factor, but not one that shows tip on the budget sheets in our libraries or even academic departments!

PENN STATE—CASES IN POINT

I would like to address a specific set of choices we have been struggling with at Penn State.

MathSci. In the past academic year, the Penn State mathematicians have been bombarding the libraries with requests to put the MathSci database online as a part of the resources accessed through LIAS (Penn State's campuswide information network). This resource is needed at nearly all our campuses, of which there are 21 scattered across the state, and the math faculty want desktop access. So far, we have only the CD-ROM version available in the Math Library at University Park. It is possible to acquire a license and some hardware so that this database could be provided on a local area network at the University Park campus only, but this would not fulfill the needs of the 20 other campuses.

We are not particularly interested in acquiring the raw data files of MathSci and developing our own search software because there are some special searching characteristics that are essential to the successful use of this database. The development costs to do our own local search software

would be out of line. In addition, we are aware that the American Mathematical Society is looking into other options for providing access to this resource. We have decided, despite very reasonable requests from the faculty and our interest in providing good service to the math community, to delay in the hope that other options for institutionwide access will be developed.

Medline. Another example is the Medline database as we have implemented it at Penn State. Medline had long been identified as a resource for which there was significant interest and an expressed demand from users. The various criteria considered in arriving at our choice of how to provide it included the special searching characteristics associated with this database, the need to deliver access to multiple Penn State campus locations across the state; the need to support authorized users in dial-up access; the desire to avoid issuing passwords; the compatibility with existing hardware; and the need to predict future costs. A team of librarians and computer professionals worked on the recommendations. Ultimately, we implemented the CD PLUSNet system, mounting the datafiles on an IBM RS 6000 that is fully accessible by the libraries and the campus networks.

Z39.50. For several other databases, we had the choice to offer a gateway to the RLG Eureka interface to a suite of databases or to implement a Z39.50 server that would preserve the native searching features of the LIAS system. The implementation of Z39.50 has certainly reframed our decision-making at Penn State. Only a year ago we had to mount a resource locally in order to be able to use the LIAS search commands. Now, with Z39.50, the searching can occur with LIAS commands running against a database held at another location, so long as the remote database supports the Z39.50 protocol as well. With a student population of over 70,000—most of them undergraduates—it is important to capitalize on their LIAS search skills. At the same time, we can avoid the costs associated with local loading of the database. We recognize that at some point we may reach a level of usage where it becomes more economical for us to mount some of these databases locally. This decision will require monitoring over the next few years.

Change is constant. Decisions reached today will have to be reconsidered periodically since conditions and costs will inevitably change. Predicting usage of new systems and new databases is an art, not a science. Providing new tools and new capabilities for users will change patterns of behavior, precipitating new and different usage patterns.

ERIC. We had been using the ERIC database on CD-ROM at the University Park campus. Nearly every other campus expressed a need for this, but we had no idea of the volume of unfulfilled needs. We recently

mounted the ERIC database on the library computer, making it network accessible to all library locations and searchable through LIAS. Users took to it with ease. In one of the first months of its availability on the network, there were nearly 60,000 searches, and use continues to grow. We also experienced an unexpected doubling of the use of the microfiche collection!

USER-CENTERED SERVICES

Research libraries must continually assess the electronic resources and make strategic choices of which to buy, which to license, and which to access cooperatively with colleague institutions. Choices will be tied to the institution's plans, values, and mission. Clearly attention must be paid to all the prevailing laws, regulations, and policies. Librarians will need a high tolerance for ambiguity in this rapidly changing context, and interaction with users will take on new dimensions since more and more of them will be using our resources remotely.

I will restate my remarks from a recent ALA program: "As we redefine academic libraries, embracing a different balance of electronic resources, we have a provocative opportunity to put the scholar at the center of our focus. . . . If we emphasize user-centered services and programs, we may do a better job in developing strategies for the future."

In this symposium, as we address a new paradigm for services relating to electronic resources, we have an excellent opportunity to bring that focus on the user into our planning for change within our research libraries.

As we do so, we must learn more about what we call scholarly communication: we need to look at how scholars work, to understand how they use information, how they create or share, seek or ignore information. We need to listen more carefully to what users, our scholars, are seeking.

Document delivery capabilities will be very important to our clienteles. There will probably need to be a range of choices, from the rather ordinary to the more refined and elegant services. The technology available to the user will shape the choice of product (photocopy, fax, electronic copy, etc.), and the providers will range from libraries, personal collections, electronic copy shops, to custom document delivery service providers.

One of the challenges for librarians and information professionals will be to catalog and identify discrete units of information in ways that will accommodate systems for document delivery. For example, we will need to make certain that the delivery of an article, as we have known it, includes the image blocks that are integral to it, even though they may be

stored in different formats in separate places in the systems. Books, portions of books, segments of audio files (oral histories or speeches), images—all these will require identification as to their place of storage in order to provide the distribution capability for document delivery.

Regardless of where something is physically/electronically stored, we must know who is responsible for the authentication of the item and how it will be accessed and shared. The lines are blurring in terms of local ownership and remote use, but for those responsible for acquiring the goods or the access to them, it is a time to plan for responsible choices and to make certain that we can collaborate effectively as the paradigm shifts.

Let me take a minute to discuss a recent decision made for Penn State's libraries. We have been providing access to a table-of-contents database, CARL Uncover, through Internet access using a fixed number of passwords. User feedback revealed various pros and cons of this particular resource. We have also been reviewing the options for a table-of-contents database, notably Faxon Finder and OCLC's ContentsFirst. A task force was charged with evaluating the options. Among their major considerations were the extent of control over the communications network environment; the number of simultaneous users that can access this increasingly popular type of resource; the costs for tapes versus the costs for access and service; the scope of the database (coverage of journals); the ability to tailor the display with local information such as our own call numbers; and the type of electronic forms that could support both interlibrary loan processes and document delivery.

The desire to have locally mounted data evolved from problems that were being experienced with response time using the current vendor and the Internet. The institutional network provides a better, more responsive environment. A locally mounted database would be searchable using the LIAS search engine, and thousands of students would not need to learn separate search conventions but would build upon their LIAS skills. We would not have to restrict the number of users so that more people would be able to concurrently access the database whenever needed at all locations of the university. The recommendation also included an assessment of the specific number and types of journals included in each database as well as the depth of the indexing provided. The task force also placed a priority on the ability to develop a document delivery capability that would be responsive to our users' needs. The task force did not recommend the least costly option in terms of stated price but instead recommended an option that offers the maximum benefit for students and faculty and that provides a strategic direction upon which we will build related services.

COLLABORATION, BOLD THINKING

Alliances will be increasingly important to libraries in the networked environment. We need to cultivate more alliances/partnerships/collaborative ventures among libraries and also with our teaching departments, research centers, and the telecommunications and computing organizations. We will also have to learn how to collaborate effectively while fostering healthy competition (grants, industry funding, etc.) in order to continue improving the complex systems through which we provide electronic resources.

Strategic planning for our institutions becomes increasingly important. It is important to know where we intend to go. It is also important to think boldly and strategically since so many of the details and variables will continue to change. We should focus attention on defining strategies—and remain flexible with some specific shorter-term objectives.

I have certainly not outlined a *single* well-defined pathway. My intent today was to present the full range of choices so that we can develop strategies appropriate for our own institutions. It is not a simple matter of choosing between local and remote access. Local resources will begin to look just like the remote systems and vice versa. The matter grows increasingly complex every week as new options reach our desktops. And, while the choices may become more complex, the interface for users must become smoother.

Risks will need to be taken—particularly if we place the user at the center of our planning and decision-making. The choices are complex and require continuous monitoring. And the choices taken will be more visible to more people than any single serial title, any major reference book ever was!

The paradigm shift opens exciting opportunities. It is time for us to take hold of our enterprise, to redesign academic and research libraries, and to ensure our continued and vital role in education and research. It is a time in which we must use change to our advantage, to lead change, and to thrive on it.

Collection Development vs. Access in Academic Science Libraries

Gary Wiggins

SUMMARY. The academic science librarian of today faces many challenges as we move toward a new century. Not the least of these is the transition from a collection which is primarily print-based to information sources which will exist substantially in electronic formats. This paper examines some of the concepts and dilemmas which an academic science library must consider in order to align its collection development activities with the changing environment of scientific and technical librarianship. In particular, the problem of serials access versus ownership is considered.

Of prime importance to collection development in large academic science libraries are the faculty, for it is their research programs and endeavors which determine the collection's scope and depth and the services offered by the library. Science faculty at academic institutions are generally engaged in 3 activities: research, teaching, and service. The larger the academic institution, the more the faculty are likely to concentrate their efforts on research. It is that activity which garners the research grants to fund the personnel and equipment needed to explore matters of interest in the laboratory. Ulti-

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mately, the results of the experiments will be published and contribute to the archival record of science which is vital for its survival.

Tuck et al. have identified four categories of research activity:

- collecting and analyzing published information
- collecting and analyzing primary data (including experiments and field work)
- writing (reports, theses, etc.)
- communicating results of research through seminars, conference papers, journal articles, and books.¹

Experimental results are typically presented at symposia or conferences before appearing in published primary sources of information. In a sense, the oral presentations are part of the second activity: teaching. Teaching requires organizational skills and the ability to present concepts in a way that will be easily understood by the audience. Good teachers also have the capacity to test the target audience in a meaningful way to see if (and to what degree) they have grasped the material which has been selected for presentation.

Finally, academic faculty are engaged in service. The service may take the form of a post within the department (for example, chairing the laboratory safety committee) or within the larger academic community at the home institution (such as service on the faculty senate), or, more likely nowadays, service to the profession through a role in one of the professional societies. The last activity may involve arranging a symposium at a national meeting or serving on any of the many committees which most professional organizations generate. An academic science library will typically be heavily involved in the faculty's research and teaching enterprises, but much less so in the activities which center around service.

There are some services which academic libraries traditionally have provided free, and which will undoubtedly continue to be free. Among them are ready reference, circulation, and open access to materials. However, both librarians and users must recognize that information is not a free commodity. Fees for certain services which have traditionally been free should be considered. In-depth reference service, mediated online searching, and on-campus delivery of materials are examples of services where the labor costs have often been

absorbed by the academic institution. Yet it is the labor costs which form a significant barrier to the provision of wider access services. Therefore, it is essential to define the core services and collections which ought to be offered at no charge to the user. In particular, much attention needs to be devoted to collection development and access services, for it is the access to published material which is still of utmost concern to the faculty at the beginning of this last decade of the twentieth century.

What used to be called the "acquisition" function in libraries has now been designated "collection management and development." This reflects the realities imposed by economics over the last two decades. Science librarians today do not simply acquire materials suggested by the faculty and other users. They actively evaluate the body of available sources, comparing them to the research and teaching interests of their primary clientele and selecting the material which will satisfy as much as possible of the current demand from the on-site collection. Even the mass of material from previous, more affluent decades of "acquisition" work does not escape their scrutiny, for collection management also encompasses weeding. The desirability of keeping a collection of little-used older material on-site must be measured against a rapidly dwindling amount of empty shelf space for newer material. Off-site storage facilities may be utilized, but increasingly, withdrawal (weeding) is the choice made by the collection manager.

Another buzzword which emerged in the 1980s is "access," a term generally applied to information sources which are not held at the geographic site of the academic institution. Calls for more use of access services are increasingly heard from library administrators, especially that new breed of assistant or associate deans of large academic libraries, the "chief collection development officers." Part of their job is to control expenditures and find space for all of the materials collected. One need only read the titles of a few "Spec-flyers" (publications of the Association of Research Libraries Office of Management Studies Systems and Procedures Exchange Center) to gauge the direction of modern acquisitions work: "Cooperative Collection Development" (no 111, February 1985) and "Serials Control and Deselection Projects" (no 147, September 1988). The recent report of the ARL Task Force on a National Program for

Scientific and Technical Information lists five priorities, among them, "accelerating research libraries' efforts to coordinate programs in acquiring, maintaining, and preserving serials literature."²

The management of science serials collections has often been approached in the last two decades by assigning each serial subscription to a subject fund (chemistry, physics, biology, medical sciences, etc.). The responsible librarians were then given the charge to "manage" the fund, that is, to make the necessary cancellations when the allocated budget was exceeded, which frequently happened in the last 20 years. The difficulty with this approach is that it tends to ignore the interdisciplinary nature of science, an aspect which is becoming increasingly important in many areas of research. Too often the fund managers (librarians) were forced to cancel serial titles which were of less immediate need by their own faculty, but were critical to an emerging new area of study in another field. An often-used criterion is the "cost/benefit" of a particular serial title.³ Elaborate usage studies have been devised to prove that such venerable reference titles as the *Beilstein Handbook of Organic Chemistry* or translation journals simply were not contributing to the immediate mission of a given fund. Unfortunately, little weight is given to the effort and expense required to produce such works and the cost of obtaining the desired information via alternate paths when such sources are not available.

Collection development in academic science libraries has bordered on the chaotic in recent decades. This has resulted in part from a failure to adequately define "cooperative collection development" and "access" and in part from the lack of a coherent plan for integrating machine-readable sources into our collecting profiles. There are some ground rules which must be accepted before order can be achieved in collection development.

Rule number 1: Buy no material for *any* program/department until its priority in the institution's plan for the 1990s is clearly defined. This must be clearly and openly stated by the highest levels of the academic administration.

Rule number 2: Invest the resources available for collection development (including access) in a manner which reflects the long-term priorities of the academic institution. This rule must be enforced by the library administration.

It seems sensible to define the access/ownership expenditure ratio on the basis of actual university priorities. There should be at least a two-tiered division of expenditures for *acquisition*, that is, for actual material held (or leased) on-site, regardless of format. This could be defined in terms of the percentage of times that a researcher should expect to find a needed item at the home institution, perhaps 90% of the time for the top level of support, and 75% of the time for those supported at a lesser level.

Many academic institutions subsidize the costs of access to materials or electronic forms of information which are not locally owned (or leased). That may take the form of a flat fee for a photocopy (or telefacsimile) of journal articles, a subsidy for costs associated with searching an online database, etc. It could be argued that academic institutions should provide a uniform level of subsidy for access according to membership in user groups, regardless of the priority which the university places on the programs or departments from which the users come. There are significant annoyances in using many of the access services, despite the great strides in the technology which serves these areas. Not the least of those is the delay in obtaining the material. It is likely that for a good while to come, the time necessary to acquire information via information products accessible through a library will exceed the time it takes to find the same information in a library which actually owns the information source. Thus, an academic institution must reserve a significant portion of what was once called the acquisitions budget for access to alternate sources of information, both print and electronic. Costs which might be subsidized from this source of funds include interlibrary loan fees, search costs for remote online databases, and purchase, license, or royalty fees for electronic forms of information provided on-site in lieu of paper counterparts.

The basic problem with cooperative collection development programs in the sciences, if not in all disciplines, is that there is a core of material and information sources which all significant research libraries want to own or have access to. This is nowhere better illustrated than in the Research Libraries Group "4+ Project" for Chemistry. Starting with a list of journals which contribute the most references each year to *Chemical Abstracts*, the participants in the project supplemented the titles with rankings from *Science Citation*

Index and other sources. The list was then pared down to 541 titles, and an agreement was reached that for each title on the list, n subscriptions would be maintained, where n varies from 1 to the maximum number of participants.⁴ The participating universities were seeking a long-term commitment for the maintenance of the titles, at least 5 years. Needless to say, there was a large group of titles for which all libraries chose to continue to maintain subscriptions.

Ralli has stated that "There is no substitute for direct access by scholars to the materials they require."⁵ But direct access is no longer limited to a user who physically retrieves books and journals sitting on library shelves. Information is becoming fully transportable to a user's workstation. In the future, it should be easier to transport information in computer-readable form from a library or other source than it is to make a photocopy today. Electronic formats of information will have the greatest and most far-reaching impact on academic research over the next decade. Libraries should, therefore, embrace a broader definition of access to include all document delivery techniques which use appropriate technology to easily deliver information from the location in which it is held to the user. As telefacsimile services become more widely available, the options for enhanced document delivery services increase dramatically.

Some recent research projects and new commercial services provide useful insights into the ingredients necessary for the successful transition to an electronic library. These are Cornell's CORE project, the British Library's Project Quartet, and the Colorado Alliance of Research Libraries UnCover services.

The Chemistry Online Retrieval Experiment (CORE) at Cornell University is an extensive investigation of the impact of an electronic chemistry library.⁶ Equipped with a database of ten years of online journals from the American Chemical Society and the indexing of those articles from Chemical Abstracts Service, the project has several ambitious goals. One of them is to determine the users' perception of the effectiveness of the electronic form of the primary journal as compared to paper. Another is to identify the most desirable traits of the user interface to an electronic system of journals. The CORE project also attempts to address the most severe limitation to online use of chemical journals—the lack of pictorial information in online files of full-text science journals. Drawings of

apparatus, spectograms, chemical structures, reaction diagrams—all standard features of printed chemical journals—would be lost if the only access in the CORE project were to the ASCII text. In order to include such graphical matter, the pages with images were scanned from the microfilm versions of the printed ACS journals.

Among the potential benefits cited for an electronic chemistry library are superior distribution methods, cheaper, less-cumbersome methods of storing and archiving the material, and more effective access to library resources by end users.⁷ A key technology for the CORE project is the computer network, since the delivery of graphic images to a workstation requires considerably more network capacity than does textual data.

Project Quartet, so named for the four British academic participants (University of Loughborough, University of Birmingham, Hatfield Polytechnic, and University College, London), also included as participants the British Library Document Supply Centre and the ADONIS consortium of publishers.⁸ The project ran for three years, 1986-89, and had objectives similar to those of the CORE project, among them, to determine just how far the newer electronic media could replace traditional print sources and where the management of print-on-paper systems might be enhanced by such media.

Project Quartet focused on 4 distinct areas: online information systems, computer-based message systems, computer conferencing systems, and document delivery systems. Two hundred and twenty high-use biomedical journals on CD-ROM (the ADONIS collection) formed the major database used in the experiment. User studies conducted on the ADONIS portion of the project showed that there was no overwhelming demand for the service. A possible explanation offered by the researchers is “. . . that the service provided was not really sufficiently better than that obtainable using conventional methods for the user to be willing to make the switch.”⁹ To be successful, a new service must provide sufficient incentive to the user to make its use routine. The Project Quartet researchers suggest that the document delivery function needs to be integrated with related services—end-user searching, current awareness bulletins via e-mail, one-stop ordering and delivery.¹⁰ Only then do they feel that the users will be persuaded to change their information search and request habits.

The Colorado Alliance of Research Libraries (CARL) has devel-

oped such an integrated system with its UnCover services. With CARL, the users can perform searches over the Internet in a bibliographic database of journal articles. Either word or author searches are possible. They can also scan contents pages of recent journals, select articles, and have them sent to a telefacsimile machine. The FAX document delivery service is generally provided within 24 hours, but the remarkable aspect of the service is that CARL retains the FAX image, thereby providing the next user who selects that article with a virtually instantaneous copy. It remains to be seen whether masses of end-users with credit cards in hand will avail themselves of CARL's UnCover services. Competition from Faxon Finder and Faxon Xpress, similar services from Faxon Research Services, Inc., will soon be available.¹¹ Such integrated services point the way to the future of science librarianship. It is the implementation of services based on increased access which will define the science library of tomorrow.

In the mid-1970s, Eugene Garfield noted that a collection of 100,000-200,000 books and articles can form the active core of a library able to provide copies of 90 percent of all future citations.¹² This contention was even more dramatically illustrated by Garfield in discussing the 1988 *Science Citation Index*. In that year, only 900 journals received 83 percent of the 8,000,000 citations processed for *SCI's Journal Citation Reports*.¹³ In the earlier article, subtitled "Pulling Weeds with ISI's *Journal Citation Reports*," Garfield proposed that only reprints of highly cited articles be retained by libraries. Although Garfield's company, the Institute for Scientific Information (ISI), had plans at that time to identify, collect, publish, and market a core collection of heavily-cited articles, such a product never materialized.

One can conjecture that the idea of a library of repackaged paper articles was ultimately deemed by ISI to be too radical a departure from the normal acquisitions patterns of the time to be marketable. However, times have changed. There exists today the technology to create a library of electronic articles tailored to the needs of a particular clientele. What is missing from the current scene is the motivation to do so. As long as libraries continue to measure quality in terms of complete physical volumes held, the idea will not take hold. However, a few bold success stories could change the value

systems of both academic librarians and users. A library equipped to store and retrieve images received from a document supply source such as CARL or Faxon could begin to build a database of document images with a modest investment in equipment.¹⁴ A LAN-based FAX product could serve as the waystation for incoming images. An archival copy could be created before forwarding to the end-user, and eventually a collection of documents of particular relevance to the primary clientele would be amassed. Of course, a fee would have to be paid to the publisher for the retention of the image, but appropriate accounting software could keep track of the costs and also determine which records had failed to be productive in a given time span (perhaps 10 years).

The obvious benefit of such a scenario from the librarian's viewpoint is that the acquisitions budget could be used to acquire *and retain* both complete volumes of the core journals and additional individual units (articles) which are truly needed by the clientele. There would be an incentive for the publishers to weigh more carefully the items accepted for publication. Articles which no one cites or wants to read could not be easily concealed in a journal volume sold only as a complete product. In terms appropriate to the automobile industry, a library would have the option of purchasing the "foreign" (off-site) economy model or the "domestic" (locally-owned) fully-equipped model.

The science library community is poised to make a fundamental change in collecting policies in the 1990s—to move from the exclusive collection of journal *volumes* to a more flexible collecting profile that allows the permanent addition to their collections of individual *articles* from journals not locally held. What is needed to facilitate the collection of individual articles is a unique item identifier for each journal article, a code which is universally understood by librarians and users. With the development of the Serials Item and Contribution Identifier (SICI), we now have such a tool.¹⁵ SICI is the ANSI/NISO standard Z39.56 (1991) which defines a string of numbers and/or letters to uniquely identify a particular item (issue) and/or contribution (article) of a serial. The SICI code provides the capability to construct a database of locally held journal articles instead of (or in addition to) journal issues and volumes. The SICI standard will enable the precise indexing and searching of a file of article

images. Some of the major scientific publishers, including Elsevier, Pergamon, and Wiley have pledged to print the barcoded version of the SICI item/issue identifier on the cover of journal issues starting in 1992. In effect, the SICI has the potential to revolutionize serials transactions in much the same way that Chemical Abstracts Service Registry Numbers for chemical compounds have revolutionized the searching of chemical databases—by providing a uniform access point to all references to a unique item. The SICI will surely become a standard data item in the records of the serials abstracting and indexing services. Then it should be straightforward to link the references retrieved from such searches to the file of original documents, whether in a remote or local database.

What is being proposed differs substantially from the system of document delivery and document use which is now in place. How can we enlist the support of the major players (publishers, document suppliers, librarians, and users) in order to transform the current system?

The two most difficult groups to convince will be the publishers and the users. Publishers will probably raise the threat of copyright infringement in order to preserve the journal volume instead of the journal article as their smallest marketable unit. The legal aspects of the reuse and repackaging of electronic data are murky at best. Libraries and publishing companies must confront and solve the copyright questions before significant progress toward the electronic library can occur. The owner of a nightclub who permits musicians to perform copyrighted music without paying royalties to the composer of the work is liable for damages. So too might librarians be held liable if we create databases which allow our patrons to illegally use the data without proper compensation to the copyright holder. Nevertheless, librarians must move the concept of cooperative collection development to its logical conclusion: that individual libraries will no longer be the customers of journal publishers. Instead, the publishers must deal with library consortia (alliances) whose members will collectively decide what titles to buy and in what numbers within the consortium. In that regard, the Research Libraries Group 4+ Project provides a good model for defining the core collections in various disciplines.

Another approach, involving Elsevier Science Publishers, is TU-

LIP, The University Licensing Program.¹⁶ The 3-year program, scheduled for 1992-94, is described as the first step by Elsevier and 12-16 participating U.S. university libraries to develop a "viable" means for the electronic distribution of scientific information, defined as "economically and functionally acceptable to all parties in the distribution value chain."¹⁷ Limited to 35 materials science and engineering journals, the TULIP collection of Elsevier titles is said to encompass approximately half of the core journals in this area. Tapes will be shipped to one or more of the participating institutions who will make the data available to the others over the Internet. Interestingly, usage statistics in future reports about the use of the journals distributed electronically through the TULIP program must not identify specific journals and articles within journals. An open enrollment option will be available from January-June 1992 only to members of the Coalition for Networked Information who subscribe to at least half of the titles in the program. These two facets of the program perhaps reveal the publisher's concern about maintaining journal subscriptions. Participants in TULIP will make a single annual payment to cover single campus uses of the titles, with no further per-use payments required. However, there is an option to sell individual articles on demand to non-campus customers.

The TULIP program is significant in that a consortium of academic libraries with common interests has engaged in a research project with a major publisher. Publishers must find ways to work with library consortia to define the "most marketable unit" of a journal title, the collection of articles which will have the greatest chance of being purchased by all members of a consortium of large academic libraries. Just as scientific authors seem to have embraced the concept of "least publishable unit" for maximum exposure of their research results, so too must the publishers develop the concept of the "most marketable unit" for the continued survival of the scientific journal as we know it today. The "least marketable unit," the journal article, will be defined by the libraries who import the images of individual journal articles into their own local databases. Publishers must decide how and to whom the least marketable unit will be sold. Will it be available from document suppliers or libraries or simply be deposited in an archive at the publisher's location to be ordered at will by whoever needs it?

The users of journal articles must next be convinced that it is to their advantage to accept the concept of access. In order to succeed, librarians must define access in a much broader sense than is currently employed in the library world (access to materials not held locally). We must extend the concept of access to our own local collections and provide better (electronic) delivery even of the material we own. It is a fact that the single most valued service in an academic science library today is the provision of well-functioning photocopy machines. Science faculty expend enormous amounts of effort, directly or indirectly, to copy articles and to enter the bibliographic records for them into their personal information systems. The paper copies themselves generally are added to the considerable store of filing cabinets maintained in most faculty offices to house their "personal libraries."

It is this cycle of information gathering that science librarians must tap into in order to win faculty support. We must turn our attention to building local electronic repositories of document images and the attendant bibliographic records which will serve our primary clientele better than is possible with the current system. More importantly, we must enlist the support of our users in the design of local multi-purpose document archives and indexing systems. The design must incorporate incentives to channel the energy and money currently being expended on photocopying into the production of the local database.

The source of the document images received by the user could be the library's local collection, as well as the collections of consortium partners, document suppliers, or publishers. The database would be searchable over a local- or wide-area network, with images delivered simultaneously to the user's workstation and to the locally maintained library database. Eventually, initiation of document delivery orders for items not locally held could be a shared responsibility with the users. A copy of the image would go into the local database as well as being shipped to the user. With an appropriate scanning device to substitute for the photocopy machine and a network link to their own private files, the end-user might even be persuaded to forego making paper copies of older articles in favor of the document images. Once the images enter the database, other legitimate users should have access to them with no more authorization than the barcodes commonly affixed to user IDs for circulation

purposes nowadays. To increase the attractiveness to the users, the database must have value added by providing pipelines to the word-processing packages employed by them. The users must be able to easily query the database, to call forth the retrieved images, and to capture bibliographic information that meshes with their own method of manuscript production. Thus, a program for fitting the bibliographic references into manuscripts at appropriate points and in appropriate formats is essential.

One might ask why all of this activity should be taking place in each local science library. Why not assign some central agency, such as CARL, Faxon, or the Center for Research Libraries to perform the work once for all of us? In addition to the obvious need to have multiple collections of significant scientific work for archival purposes, there is the economic aspect to consider. At this point in time, the scientific publishing enterprise cannot survive if we tell the publishers to sell one copy to a document delivery counterpart of OCLC and let us affix our "access symbol" to the record as needed. It is unlikely that there will be a sudden shift from commercial publishers to university presses or to free or low-cost electronic formats for scholarly journals in this decade. For the foreseeable future, there must continue to be a diverse group of subscribers to share the publication costs of scholarly journals. Sanford G. Thatcher, Director of the Penn State Press and long-time Chair of the Copyright Committee of the Association of University Presses, has spoken to this issue.¹⁸ He argues that scientific journal publishing requires substantial resources in staff expertise and capital. While anyone with the ability to start a forum on a listserver can conceivably become an electronic journal "publisher," this is not devoid of costs, both human and real. The value added by publishers cannot be denied. The scientific community needs the scholarly review process which is coordinated by the publishers. Likewise, publicity and the maintenance of a subscription service are not without cost.

Be that as it may, it must be admitted that a portion of the cost of the current scientific publishing enterprise is due to financial incentives given by the publishers to the organizers of professional society symposia and conferences. Sometimes the expense of presenting a symposium is more than offset by the royalties paid by the publisher in exchange for the right to publish the papers.

There is a pressing need for a reassessment of the values and

costs in scholarly publishing. The process has begun, and it will not be a painless one. The document access system proposed in this paper is transitional. It seeks to shore up and redefine the library customer base of the scientific publishers by promoting the concept of the article as a marketable unit. Librarians, publishers, and users need to work together to define acceptable subscription prices for journals, fees for the retention and reuse of document images or abstracting/indexing data, *and* fees for the value-added services provided by librarians. Then we will move toward a truly electronic library.

REFERENCE NOTES

1. Tuck, Bill [and others]. *Project Quartet*. (British Library. Library and Information Research Report; 76); Cambridge: Cambridge University Press; 1990. (p.249)

2. *Report of the ARL Task Force on a National Program for Scientific and Technical Information*. Washington, DC: Association of Research Libraries; 1991 May. (p.6)

3. See for example: Blick, Dawn; Sinha, Reeta. Maintaining a high-quality, cost-effective journal collection. *College & Research Libraries News* 51(8): 485-490; 1991 September. Chrzastowski, Tina E. Journal collection cost-effectiveness in an academic chemistry library: results of a cost/use survey at the University of Illinois at Urbana-Champaign. *Collection Management* 14(1/2): 85-98; 1991.

4. The RLG lists in chemistry, business, and mathematics are available from: Distribution Services Coordinator, The Research Libraries Group, Inc., 1200 Villa Street, Mountain View, CA 94041-1100.

5. Ralli, Tony. Performance measures for academic libraries. *Australian Academic & Research Libraries* 18(1):1-9; 1987 March. (p.4)

6. Egan, Dennis E. [and others]. Creating and using an electronic library: Progress report on the CORE project. In *Proceedings of EDD '91; Belcore/BCC Conference on Electronic Document Delivery*; 1991 March 25-28; East Brunswick, NJ. (pp.238-251)

7. *Ibid.* (p.239)

8. Tuck. *Op. cit.* (p.3)

9. *Ibid.* (p.244)

10. *Ibid.* (p.248)

11. For more information on CARL's UnCover service, contact: CARL Systems, Inc., 3801 E. Florida Avenue, Bldg. D, Suite 300, Denver, CO 80222 Phone: 303-758-3030 FAX: 303-758-0606.

The Minutes of the September 24-25, 1991 OCLC Research Libraries Advisory Committee indicate that OCLC is jointly developing a serials table of contents and

document delivery project with Faxon. The database will contain bibliographic records from about 10,000 journal titles and will be linked to library holdings information. Members of the committee noted that "Faculty will not want to pay individually for such documents and will want the institution to cover charges." (p.6) They also note that "Un-mediated document supply requests directly from the user are inevitable." (p.6) For further information, contact: Faxon Research Services, Inc., 14 Southwest Park, Westwood, MA 02090 Phone: 617-329-3350 ext. 407; FAX: 617-329-6291.

12. Garfield, Eugene. No-growth libraries and citation analysis; or, pulling weeds with ISI's *Journal Citation Reports*. In *Essays of an Information Scientist*; v. 2: 1974-1976; Philadelphia, PA: ISI Press; 1977: pp. 300-303. (p.301)

13. Garfield, Eugene. How ISI selects journals for coverage: quantitative and qualitative considerations. *Current Contents* 33(22): 5-13; 1990 May 28. (p.6)

14. The equipment and software necessary to establish a document archive database are available commercially. For example, Compulink's LaserFiche LAN can store document images and be integrated into a Novell network. The system handles computer files, paper documents, and FAX transmissions. The so-called "hydra" machines, multi-function devices for printing, faxing, scanning, and copying, could also be adapted for such an application. See *Byte* 16(4): 217; 1991 April for a list of companies that provide document imaging solutions.

15. Feick, Tina. SISAC news: ANSI/NISO Z39.56 1991 has passed! and SISAC update. *Newsletter on Serials Pricing Issues* NS 13; 1991 November 13.

16. Elsevier Science Publishers B. V. TULIP, The University Licensing Program. Working Plan 1; 1991 October 10.

17. *Ibid.* (p.2)

18. Thatcher, Sanford G. Letter, 1991 December 3, to Ann Okerson, Office of Scientific and Academic Publishing, Association of Research Libraries.

Collecting and Accessing “Free” Internet Resources

Julia Ann Kelly

With the growth of the Internet, collection development activities are beginning to broaden to include electronic resources, some of which are available at no charge via the network. Understanding them and finding a place for them as part of what the library has to offer is a challenge being met by many librarians.

CATEGORIES OF FREE RESOURCES

A wide range of resources are available via the Internet at no cost. They range from those that fit the traditional definitions of library materials to others that have developed because of the growth of networking and the unique environment that the Internet provides.

Many materials in familiar formats such as books, journals, newsletters, indexes and government documents have made the move from print to electronic format, and some of those that appear on the Internet from each category are free of charge.

Most books are protected by the copyright laws, but efforts are being made to digitize and mount older materials not subject to

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copyright restrictions. An example of such an undertaking is Project Gutenberg, which provides Internet access to works such as *Moby Dick*, *The Scarlet Letter* and *Paradise Lost*.

An ever-expanding number of journals are accessible free via the Internet. Some represent established print journals which are appearing in a new format, such as *Morbidity and Mortality Weekly Report (MMWR)*, produced by the Centers for Disease Control and Prevention. Others exist solely in the electronic world. These range from refereed titles sponsored by mainstream publishers and societies, such as *Psycoloquy*, produced by the American Psychological Association, to much less scholarly and authoritative choices (Harnad 1992). Some electronic journals, such as *Postmodern Culture* and *Interpersonal Computing and Technology Journal*, were undertaken with a good deal of thought about areas such as their purpose, how to best use the new medium, and the variety of methods people might be using to access their journal (Amiran 1991, Collins 1994).

While most bibliographic databases available via the Internet charge for access, a growing number are free of charge. These tend to be smaller files covering a narrow subject area. Examples include the databases mounted as part of the Dartmouth library system: Cork, which includes references on substance abuse, and Pilots, covering traumatic stress.

The National Library of Medicine (NLM) has recently made the AIDSLINE database available at no charge for users who search the database directly from NLM (National Library of Medicine 1994). A number of files in the field of genetics are free to anyone with Internet access. Examples include Genome Data Base and Online Mendelian Inheritance in Man, both produced at Johns Hopkins University.

Under mandates to both become more efficient and make information available at a minimal cost, an ever-growing number of government agencies are mounting their materials on the Internet. Items include the text of congressional bills, census data, and reports, regulations and news releases from various departments.

Some government agencies are going beyond simply making text documents available. They may be adding search engines, utilizing the World Wide Web's (WWW) graphical, video and audio capabilities, and formatting material for easy importation into spreadsheets.

Some groups are providing free access to items that formerly had some cost associated with their use. In addition to AIDSLINE, the National Cancer Institute's CancerNet service falls into this category. CancerNet is made up of short (2-5 page) background documents on many types of cancer (National Library of Medicine 1992). For each type, there is a report for patients as well as one geared for health care providers. They are accessible via Gopher or by sending an e-mail request which results in the document being returned to the requester via e-mail in 10 minutes.

Novel categories of resources are also becoming available on the Internet. While some may not seem to be of interest to those involved in collection development in libraries, such as the archives of listservs and usenet newsgroups, others may contain information of great interest to library users.

The growth of the WWW and sophisticated software browsers allow users to tap into the multimedia resources as well as text. It is possible to view scanned images of paintings from a far away museum, fragile manuscripts, or radiographs of lung tissue. Instructors who have developed multimedia computer-aided instruction modules are beginning to open them up to users on the Internet. Connecting via the network to electronic bulletin boards which were formerly available only via dial-up access can save money. Archives of free computer programs have been part of the Internet for a number of years.

PRODUCING AND PROMOTING FREE RESOURCES

The unspoken rules and idiosyncrasies of the print publishing world are familiar to many librarians, and this knowledge allows us to carry on with our jobs more efficiently. Understanding the origins of free Internet resources is also important for librarians who are collecting and providing access to these items.

Not surprisingly, "free" Internet resources are seldom free to produce. The money may come from grants, such as the genetics databases from Johns Hopkins University. They may be incorporated into the daily work flow, as with a number of the materials produced by government agencies.

In many cases, free resources have become available at least in part due to the pioneer spirit that exists among users of the Internet.

Newcomers to the Internet may be horrified by the attitude of some longtime users who feel that all digital information should be part of the Internet and it should all be free. However, a somewhat tempered version of this feeling has helped make a large amount of material available at no cost to users.

The idea of the Internet as a new frontier not only gives some people the expectation that it will all be free, but it also seems to inspire some to contribute resources to the electronic community. Project Gutenberg, mentioned earlier, is run by volunteers and most of their budget and equipment comes from donations.

The Bio-Medical Library at the University of Minnesota maintains a resource called "Health and Medicine in the News," which provides the full citation to medical journal articles which have been referred to in the *Star Tribune*, the Minneapolis daily paper. It was undertaken to assist the staff at the reference desk, but has proven to be useful to other librarians as well as library users. Although most of the work is now done by a library assistant, a student and a librarian during the regular work day, one librarian contributes extra time outside of work and getting the project up and running took many extra weekend and evening hours.

Unfortunately, much of the information on the Internet is essentially self-published, so few of the free resources adhere to standards or deadlines or have quality control mechanisms in place. This complicates the task of evaluating these items, a topic which will be covered in more detail later in this paper.

Not surprisingly, very little is done to promote or advertise many free electronic resources. Groups with donated computer space and volunteer workers probably do not view promotion as a high priority unless they are hoping to solicit donations or additional volunteers. Their original target audience may already know that the resource exists, and aside from posting a notice to a few relevant listservs, there is no mechanism to inform the network community of the new resource.

RESOURCE DISCOVERY

Although the Internet is a 1990s technology, locating individual items on it may resemble the buying trips that librarians took to Europe more than 100 years ago.

Many librarians, especially those who work at institutions that have mounted Gopher and WWW servers, are aware of the time-consuming nature of the discovery of free Internet resources. Some libraries, such as the ones at the University of Michigan and Cornell, have formalized their procedures in hopes of streamlining the tasks (Riley 1994, Demas 1994).

Cataloging Internet resources is an idea being pursued by several groups. The Catriona Project, a collaborative effort in Great Britain, is looking first at traditional cataloging of materials on the network and next considering a plan for the day when OPACs will allow connections to these cataloged items. OCLC has recently received a Department of Education grant to coordinate the cataloging efforts of Internet resources and to include the records in their database. In a report about an OCLC pilot project for cataloging network resources, it was suggested that perhaps libraries should take responsibility for cataloging all Internet resources produced at their institutions (Dillon 1994).

Some print directories of Internet materials exist, such as the *Directory of Electronic Journals, Newsletters and Academic Discussion Lists*, published by the Association of Research Libraries (Okerson 1994), but time lags inherent in the publication cycle make it difficult to keep them current. Many how-to books about the Internet list a few selected resources, but these tend to be the more commonly known ones.

Valuable lists of resources in a particular subject area are beginning to appear in the journal literature, such as the current series in *College and Research Libraries News*, which has covered a number of areas from economics to women's studies (Morgan 1994, Glazier 1994).

Electronic discovery tools may also be helpful, but they suffer from the same problems that plague print directories such as currency and lack of comprehensive coverage. One gathering of subject lists in electronic format which may be useful is the Clearinghouse for Subject-Oriented Internet Resource Guides, maintained at the University of Michigan.

One strategy for keeping up on resources in a particular field is to monitor the listservs in that discipline. This could mean sifting through large amounts of e-mail each day. There are also lists devoted solely to new resources on a variety of subjects. Subscrib-

ing to one of these may cause an even larger flood of mail, with very little being focused on any given field of study.

The searching tools which exist on the Internet, such as Veronica for Gopher and Web Crawler for the WWW, are helpful but hardly allow for comprehensive searching. This is partly due to the lack of sophistication of the search engines themselves, which do not allow set building or proximity searching. The challenge is complicated even more by the nearly total lack of subject indexing on the network and the propensity of producers to give catchy rather than illustrative names to their resources.

Redundancy is also a problem in resource discovery on the Internet. Using Veronica to search Gopher or scanning other Gopher servers will often turn up the same materials over and over. It is similar to a scenario where 10 publishers print the same 100 books, plus an occasional 1 or 2 unique titles, and they make no effort to draw your attention to the unique ones.

EVALUATING ELECTRONIC RESOURCES

Many of the methods librarians use to evaluate print items are not helpful in making decisions about electronic resources. A large number of items are basically self-published or put out by small working groups, so judging on the reputation of the publisher is not very useful. Editors and authors may also be unfamiliar.

Noting that a number of other institutions have included a free resource in their Gopher or WWW homepage may seem like a good endorsement, but it may not carry as much weight as it appears. It only takes a small investment to add a Gopher or WWW link to a location, and many groups who maintain servers are more diligent about adding new items than about continued evaluation and weeding. Leaving a pointer to a free Internet resource is very different from renewing an expensive contract with a publisher or database vendor.

Self-publishing takes on a new meaning on the Internet. Many valuable resources are essentially self-published, or put out by small departments or organizations not formerly in the publishing business. It may sometimes be difficult to tell, too, if material attrib-

uted to an institution or company is the work of one person who is not really representing the parent body.

The longevity and solvency of the producer of a resource is important, but may be difficult if not impossible to figure out. How much staff time should you spend to check on a resource that you will not be paying for? It is reasonable to expect that a grant-funded project will continue though the life of the grant, but what about the many useful resources that are put out by volunteers or employees who may have many other tasks with higher priorities? Some libraries that maintain Gopher or WWW servers or produce network resources are beginning to rewrite job descriptions to reflect those responsibilities, but not all resource producers may do that.

A number of libraries such as those at Penn State and the University of Michigan have developed criteria to help in the evaluation of Internet resources. Some of the ideas mentioned are concepts that would not apply when considering print materials, including adequate instructions, convenience of use, evidence of ongoing maintenance and labor involved in making the item available. Others advise caution when selecting electronic items (Lynch 1993).

It should be noted that there has been some hesitation on the part of authors to publish electronically or to submit material to electronic journals. While there are the advantages of timeliness, ease of transmission and wide availability at a very low cost, concerns have seemed to center on the credibility and lasting influence of these publications, and are often motivated by promotion and tenure issues.

OBTAINING FREE ELECTRONIC PUBLICATIONS

With our mailboxes at work and at home filled with free materials we did not request, the idea of putting energy into obtaining free items may seem a bit odd. In some cases, connecting your library to a new free resource could mean adding a simple link to a Gopher or WWW site, and checking periodically to be sure the connection is still valid. Other items may take a bit more work.

For each way to access the Internet, including e-mail, telnet, ftp, Gopher and WWW, there are free resources available using that type of access. Some involve combinations of connections, such as electronic journals that distribute their tables of contents via e-mail and require the subscribers to obtain the full text via ftp.

The access vs. ownership debate also comes up in dealing with free resources. Is it wise to cancel similar print items, or electronic ones that are not free? Will the electronic version of a government document such as the *Occupational Outlook Handbook* take the place of the print? Will the producers of free electronic resources, some of whom are operating on a shoestring budget, take responsibility for archiving their materials?

TRADITIONAL TECHNICAL SERVICES FUNCTIONS

Although electronic books, journals, government documents and the like do not arrive via the Postal Service and require date stamps, tattle tape and call number stickers, many still should undergo some processing so that the library is able to maintain some sort of control over them.

Some items may “arrive” via e-mail, but many will simply be added to a remote server to which others point. A few may need to be fetched via ftp, either manually or electronically. If a library is offering local patrons access to these materials, does anyone need to check them in, or at least verify that they are being updated in a timely manner?

Claiming issues or sections of free resources that are missing may be problematic. It may be difficult to know if an item is late, or whether it is even appropriate to inquire about it, since no money has been exchanged and the publisher is under no obligation to the users. Without vendors to manage subscriptions and field questions, tracking down a small number of problem items could be very time consuming.

Cataloging initiatives, a few of which were discussed earlier, may bring new resources to the attention of a large number of users. It remains to be seen, however, if adding a standard entry to an OPAC or one of the bibliographic utilities will ultimately be the best solution. As with maintaining a Gopher server or WWW homepage, it can be labor-intensive to make sure entries are accurate and up to date.

ACCESSING FREE RESOURCES

Although electronic resources, free or otherwise, do not need to be bound or shelved, some scheme to present them to users in an

organized and usable fashion is important. Many librarians have put their organizational skill to work building Gopher servers and WWW homepages. Trying to tame the chaos of the network by presenting users with a thoughtful and easy-to-use gateway is truly a value-added service, and many Gopher servers and WWW homepages are maintained in a fashion similar to the free resources themselves: with little staff or equipment or time.

In addition to deciding which resources to highlight and how to design the interface, librarians face several other challenges in providing access to free network resources. Gopher software and most WWW browsers are free, but the hardware needed to run them is not. The shift from Gopher toward WWW means that more expensive equipment with multimedia capabilities is needed to take full advantage of the visual world of the WWW.

The obsolescence of any of the software products that allow Internet access may not seem like a pressing issue, but the lessons learned by libraries who are still trying to support machines used to view older microforms should probably not be ignored when thinking about continued access to older Internet resources.

Before library staff members are able to assist users with the Internet, they should have some knowledge and experience themselves. It may be difficult to justify the time during a busy day to explore the far reaches of Gopher, but formal and informal staff training is becoming more routine in many libraries.

Gopher, Mosaic and Netscape may provide nicely designed interfaces and be easy to use, but many of the resources that these gateways help users connect to may not be as friendly. Some assistance from library staff may still be needed, whether it is in the form of a person helping users in the library or answering queries by phone or e-mail.

Although the network may help to cut down on the amount of paper used in libraries, there still may be a need for a few handouts, pathfinders, and guides for novice Internet users. These items may also be easily mounted electronically via Gopher or WWW.

Some libraries have enhanced the presentation of free Internet resources by downloading them and dividing them into sections, adding WAIS search capabilities, or remounting them on the WWW. Government documents, with their lack of copyright restric-

tions and growing presence on the network, are among the common resources that receive this added treatment.

COOPERATION AMONG LIBRARIES

A number of cooperative Internet projects are being carried out or planned by libraries across the country. Although few have the main objective of gathering free resources, a number of them have that activity as part of their mission.

The Committee on Institutional Cooperation (CIC), which is made up of the Big Ten schools, the University of Chicago, and the University of Illinois at Chicago, have several Internet ventures either currently running or pending. They include the CICNet electronic journal collection, the Virtual Electronic Library project, which links the OPACs of the participants and enhances interinstitutional borrowing, and smaller initiatives by the East Asian, health sciences, physics and reference departments.

Other projects include Tex-Share, which links 52 academic libraries in Texas, and VIVA, the Virtual Library of Virginia, another cooperative venture by academic libraries. The Integrated Genomic Database (IGD), is an international project linking molecular biology databases.

NEW ROLES FOR ACADEMIC LIBRARIANS

Since academic libraries have been at the forefront of locating free Internet resources and making them accessible, perhaps they should take on the role of "collecting" these items for other libraries. Some public institutions have always considered the needs of their state or community in carrying out their missions, so making Internet resources available to the public is probably not a great extension of that task.

While more and more public libraries are getting connected to the network, most academic libraries have been using the Internet for a longer time, and are probably in a better position to collect, organize and provide access to free Internet resources. Few corporate libraries have the staff or mission to build links to resources on

a just-in-case basis, but would certainly benefit from an easy route to locate needed resources.

Beyond other libraries, there are millions of users who are connecting to the network from their offices, homes, labs and schools. Any effort to organize the myriad of free resources would be a great benefit to assist these users.

CONCLUSION

Free resources abound on the Internet, from books and journals to multimedia items. Standards for production, promotion and maintenance are nonexistent, so finding and evaluating, and providing access to these materials is a growing challenge for librarians. Challenges are being met by developing criteria for selection, looking at cataloging options, and working in cooperation with other institutions.

REFERENCES

- Amiran, Eyal, and John Unsworth. "Postmodern Culture: Publishing in the electronic medium." *Public-Access Computer Systems Review* 2 (1991): 67-76.
- Collins, Mauri, and Sane Serge. "IPCT Journal: A case study of an electronic journal on the Internet." *Journal of the American Society for Information Science* 45, no. 10 (1994): 771-776.
- Demas, Sam. "Collection development for the electronic library: Mainstreaming the selection and acquisition of electronic resources." Paper presented at the Symposium on Collection Management in an Electronic Environment, University of Minnesota, St. Paul, Minnesota 1994.
- Dillon, Martin, Eric Jul, Mark Surge, and Carol Hickey. "The OCLC Internet Resources Project: Toward providing library services for computer-mediated communication." Paper presented at the Clinic on Library Applications of Data Processing, Urbana-Champaign, Illinois, April 4-6, 1993.
- Glazier, Mary. "Internet resources for women's studies." *College and Research Libraries News* 55, no. 3 (1994): 139-143.
- Harnad, Stevan. "Psycoloquy: A model forum for "scholarly skywriting"." *Serials Review* 18 (1992): 60.
- Lynch, Clifford. "The role of libraries in access to networked information: Cautionary tales from the era of broadcasting." Paper presented at the Clinic on Library Applications of Data Processing, Urbana-Champaign, Illinois, April 4-6, 1993.

- National Library of Medicine. "CancerNet and CancerFax provide additional access to PDQ statements." NLM Technical Bulletin, no. 269 (1992): 16.
- National Library of Medicine. "Free access to AIDSLINE, AIDS DRUGS, AIDSTRIALS and DIRLINE." NLM Technical Bulletin, no. 276 (1994): 13.
- Morgan, Keith, and Deborah Kelly-Milburn. "Internet resources for economics." College and Research Libraries News 55, no. 8 (1994): 475-478.
- Okerson, Ann, ed. Directory of Electronic Journals, Newsletters and Academic Discussion Lists. 4th ed. Washington D.C.: Association of Research Libraries, 1994.
- Riley, Ruth. "Maintaining and building a Gopher." Paper presented at the Annual Meeting of the Medical Library Association, San Antonio, Texas, May 16, 1994.